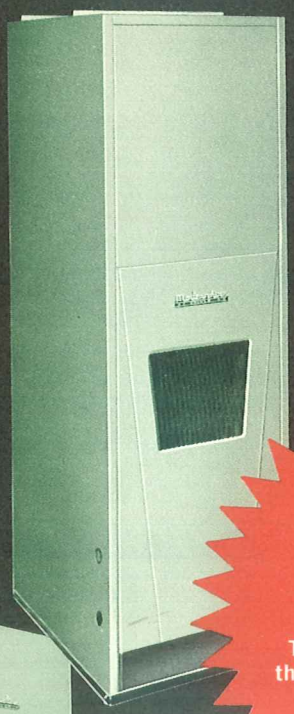
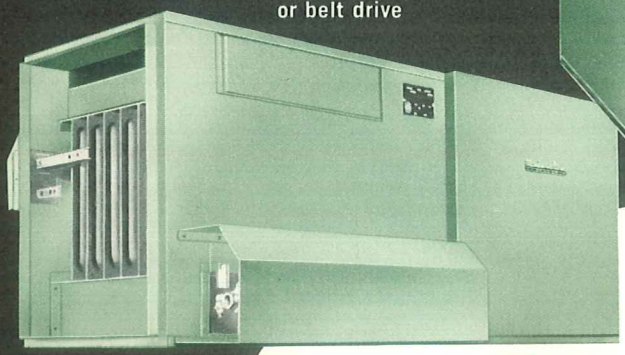
COUNTERFLOW MODELS
Gas or oil fired . . .
Direct drive
or belt drive



HI-BOY MODELS
Gas fired models . . .
Direct drive
or belt drive

HORIZONTAL MODELS
Gas or oil fired . . .
Direct drive
or belt drive

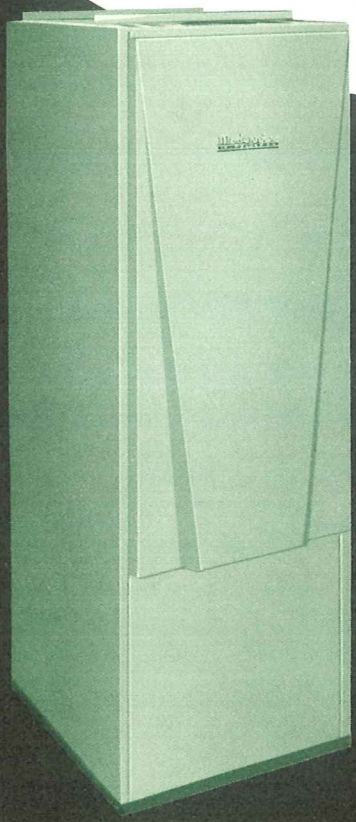


ALL NEW!

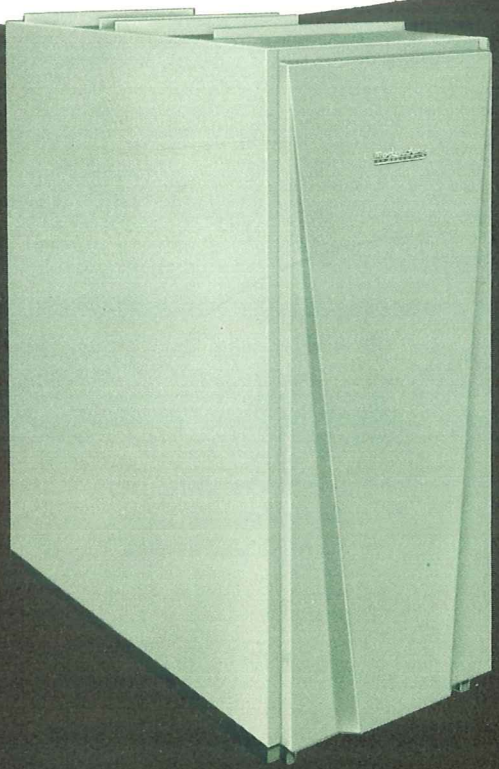
The only complete line in the low priced field. There's a Modernaire model and size to fit every application

ModernAire

GAS and Oil-fired Furnaces



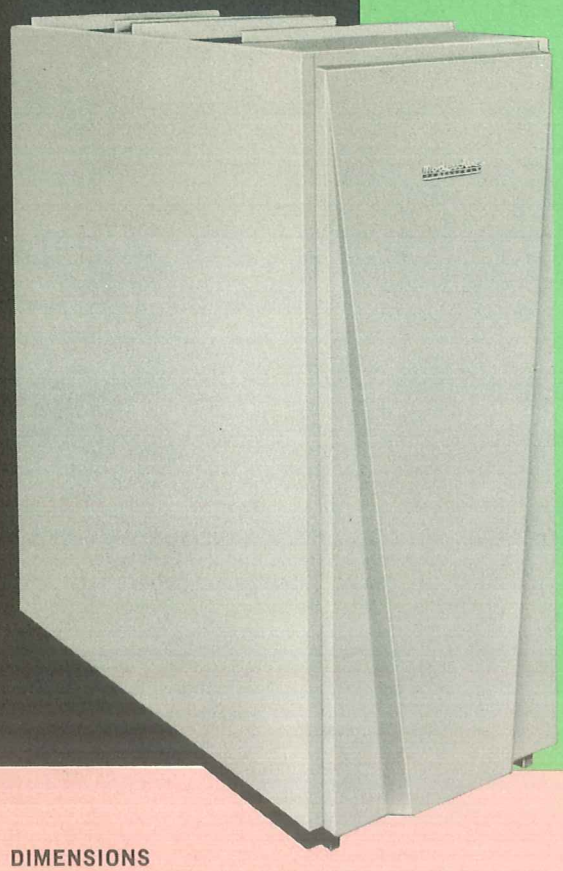
HI-BOY MODELS
Oil fired . . .
Direct drive
or belt drive



BASEMENT MODELS
Gas or oil fired . . .
Direct drive
or belt drive

AMERICAN GAS ASSOCIATION · APPROVED · CONFORMS WITH NATIONAL SAFETY REQUIREMENTS

Approved for natural, manufactured or liquefied petroleum gas by the American Gas Association



GAS FIRED BASEMENT MODELS

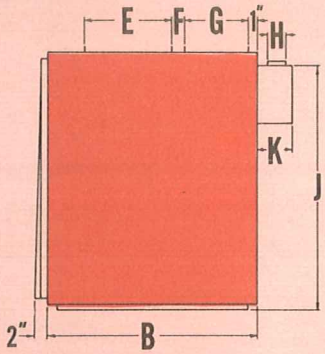
100,000 to 200,000 B.T.U. Input Capacities

All basement models are completely wired and assembled at the factory for ease of installation. The heat exchanger is designed so that no restricting air baffles or shields are necessary. Large capacity blower, mounted on rubber with a felt connection at the outlet offers super quiet operation in addition to the air requirements needed for air conditioning. All units are fiberglas insulated and all controls are mounted inside the full length vestibule for easy access. The smooth flowing lines of the "round to square" heat exchanger is your assurance of top operating efficiency.

DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS		DIM. F	FLUE			FILTERS	SHIPPING WT.	PIPE SIZE	
	A WIDTH	B DEPTH	C HEIGHT	D x E WARM AIR	D x G RETURN		H DIA.	J HEIGHT	K DEPTH			NAT. MIX. L.P.	MFD.
GB 100-D GB 100	20″	40″	50″	18 x 14	18 x 14	2½″	5″	46″	7″	16 x 25	255	½	½
GB 125	20″	43″	52″	18 x 18	18 x 14	1½″	5″	48″	7″	1-10 x 20 1-15 x 20	280	½	¾
GB 160	22″	48″	54″	20 x 20	20 x 16	2½″	6″	50″	8″	1-15 x 20 1-20 x 20	340	½	¾
*GB 200	26″	56″	56″	24 x 20	24 x 22	2″	6″	51½″	8″	2-20 x 25	420	¾**	1

*Assembled and Shipped in two cartons. **½″ on L. P. Gas.

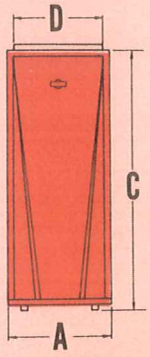


SPECIFICATIONS

UNIT NUMBER	A. G. A. RATING-BTU/HR.		BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE
	INPUT	BONNET CAPACITY					
GB 100-D	100,000	80,000	9-9	DIRECT	⅙	825	0.15 IN.
GB 100	100,000	80,000	9-9	3¼ x 6-35	⅛	825	0.15 IN.
GB 125	125,000	100,000	10-8	3¼ x 6-37	¼	1030	0.2 IN.
GB 160	160,000	128,000	12-9	3¼ x 7-41	⅓	1325	0.2 IN.
GB 200	200,000	160,000	12-12	3¼ x 7-42	½	1650	0.2 IN.

MATCHING PLENUMS (FOR COOLING COILS)

FOR USE WITH UNITS NUMBER	WIDTH	DEPTH	HEIGHT	DOOR OPENINGS		PLENUM SIZE	
				FRONT	REAR	WARM AIR	RETURN
GB 100-D GB 100	20″	40″	32″	19¾ x 15¾	19¾ x 15¾	20 x 25	20 x 15
GB 125	20″	43″	30″	19¾ x 15¾	19¾ x 15¾	20 x 26	20 x 17
GB 160	22″	48″	28″	21¾ x 20¾	21¾ x 15¾	22 x 28½	22 x 19½
GB 200	26″	32″	26″	23¾ x 20¾″		26 x 32	
GB 200	26″	24″	26″		23¾ x 15¾		26 x 24



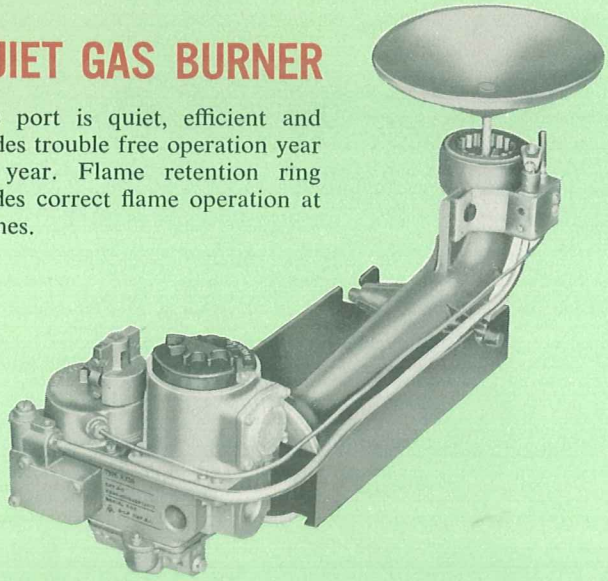
ALTERNATE MOTORS and DRIVES for cooling unit combinations

UNIT NUMBER	BLOWER	DRIVE	MOTOR	C.F.M.	STATIC PRESSURE
GB 100	9-9	3¼ x 5-35	¼	840	0.5 IN.
GB 100	9-9	4 x 5-35	⅓	1100	0.5 IN.
GB 125	10-8	3¼ x 5-35	⅓	1200	0.5 IN.
GB 160	12-9	3¼ x 6-40	½	1600	0.5 IN.
GB 160	12-9	3¼ x 5-39	¾	1850	0.5 IN.
GB 200	12-12	3¼ x 5-39	¾	2000	0.5 IN.

Where Modernaire units are to be installed with cooling coils, larger motors to operate against higher static pressures are available. Capacity tables at the left shows model sizes and drives for use with units equipped with cooling coils.

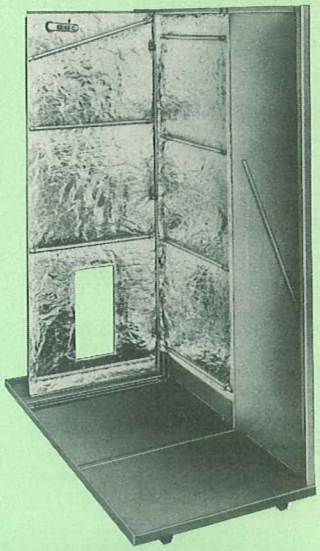
QUIET GAS BURNER

Single port is quiet, efficient and provides trouble free operation year after year. Flame retention ring provides correct flame operation at all times.



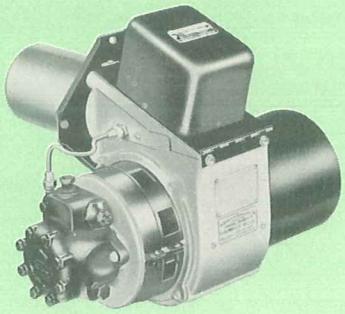
FIBERGLAS INSULATION

Foil faced insulation assures quiet operation and minimum heat loss. Solid steel base of the cabinet is mounted on full length steel channels which may be adjusted for leveling—requires no grouting. Cabinet is finished in tough, baked enamel silicone finish for long-lasting durability.

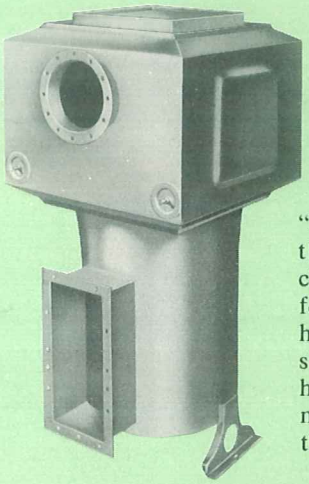


QUIET OIL BURNER

Combustion chamber is factory installed—rugged refractory construction—corbelled top design assures quiet operation and long years of service. Pressure atomizing oil burner is mounted and completely wired at the factory. Oil burner can be easily removed by taking off three nuts on the burner mounting plate.



HEAT EXCHANGER



"Round to square" design of the Modernaire heat exchanger permits smooth uniform air passages between the heating surfaces. Tapered design means less resistance, higher efficiencies and permits smooth flow of air through the unit.

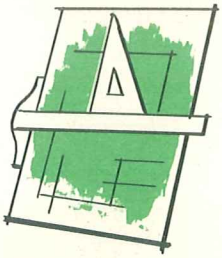
AUTOMATIC CONTROL

You merely set the thermostat to the desired temperature . . . Modernaire does the rest. Every room in your home remains at a constant, even temperature 24 hours a day.

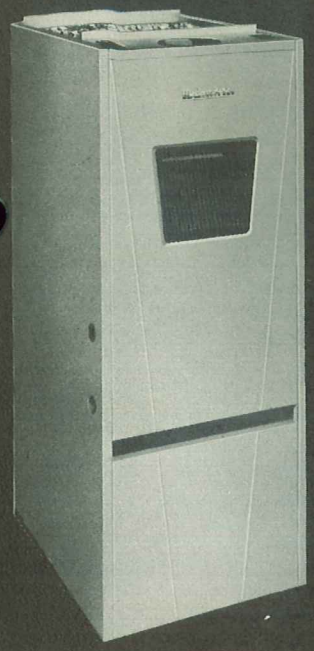
PERFECT AIR CONTROL

Clean, healthful air, warmed to just the right temperature, is gently circulated to every room in your home. Dust and dirt are removed to provide less house cleaning chores.

CUSTOM DESIGN



No matter what type of home you have—slab floor, crawl space or basement—Modernaire can provide a unit designed for you.

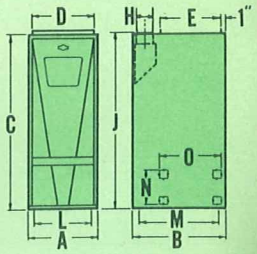


GAS FIRED HI-BOY

Attractively finished in a green silicone enamel. Air drop can be added and permits installation of the HI-BOY in a basement . . . A flexible combination that will fit any installation requirement.

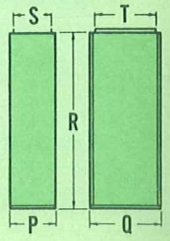
DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS			FLUE		FILTER SIZES	PIPE SIZE NAT. MIXED MFD. L.P.	SHIPPING WEIGHT	
	WID. A	DEPTH B	HT. C	WARM AIR D x E	RETURN BOTTOM L x M	RETURN SIDE N x O	DIA. H	HT. J			UNIT	SIDE AIR CABINET
GU 60-D GU 60	14″	23½″	60″	12 x 14	12 x 16	12 x 18	4″	60″	14 x 20	½″	160	25
GU 80-D GU 80	20″	27″	58″	18 x 18	16 x 24	12x 18	5″	58″	16 x 25	½″	210	25
GU 100-D GU 100	22″	29″	58″	20 x 20	16 x 24	12 x 20	5″	58″	16 x 25	½″	230	30
GU 125	22″	29″	68″	20 x 20	16 x 24	16 x 20	6″	68″	20 x 25	½″	270	35



SPECIFICATIONS

UNIT NUMBER	A.G.A. RATING-BTU/HR		BLO.	DRIVE	MOT.	C.F.M. @85° RISE	STATIC PRESSURE	CLEARANCES			
	INPUT	BONNET CAPACITY						SIDES & REAR	FRONT	FLUE PIPE	PLENUM TOP
GU 60-D	60,000	48,000	9-6	Direct	1/12	500	0.12	1″*	6″	6″	1″
GU 60	60,000	48,000	9-6	3¼ x 6-35	⅛	500	0.12	1″*	6″	6″	1″
GU 80-D	80,000	64,000	9-7	Direct	1/12	660	0.12	0″	6″	6″	1″
GU 80	80,000	64,000	9-7	3¼ x 8-39	⅛	660	0.12	0″	6″	6″	1″
GU 100-D	100,000	80,000	9-9	Direct	⅛	825	0.15	0″	6″	6″	1″
GU 100	100,000	80,000	9-9	3¼ x 7-38	⅛	825	0.15	0″	6″	6″	1″
GU 125	125,000	100,000	9-9	3¼ x 6-36	¼	1030	0.20	0″	6″	6″	1″

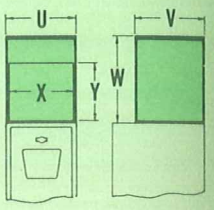


SIDE RETURN AIR CABINET

FOR USE WITH UNIT NUMBER	WIDTH P	DEPTH Q	HEIGHT R	PLENUM OPENING S x T
GU 60-D GU 60	10″	16″	60″	8 x 14
GU 80-D GU 80	10″	20″	58″	8x 18
GU 100-D GU 100	10″	22″	58″	8 x 20
GU 125	10″	22″	68″	8 x 20

MATCHING PLENUM (for cooling coils)

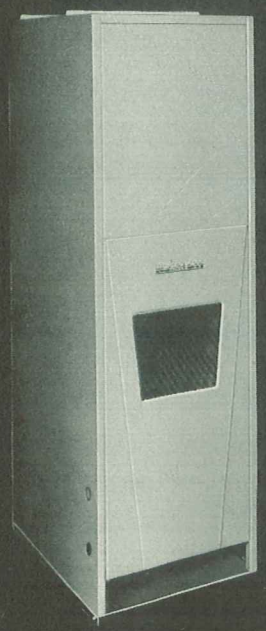
FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y
GU 60-D GU 60	17″	22″	24″	16¾ x 12
GU 80-D GU 80	20″	22″	24″	19¾ x 15¾
GU 100-D GU 100	22″	22″	24″	21¾ x 15¾
GU 125	22″	22″	24″	21¾ x 15¾



ALTERNATE MOTOR and DRIVES for cooling unit combinations

Capacity table at the right shows motor sizes and drive for units equipped with cooling coils.

UNIT NUMBER	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
GU 60	9-6	4 x 5-35	¼	700	0.5
GU 80	9-7	3¼ x 5-34	¼	800	0.5
GU 100	9-9	3¼ x 6-36	¼	850	0.5
GU 100	9-9	3¼ x 5-34	⅓	1200	0.5
GU 125	9-9	3¼ x 5-34	⅓	1200	0.5

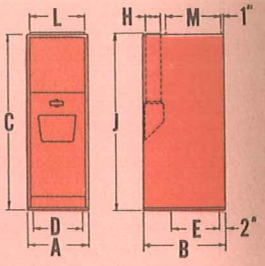


GAS FIRED COUNTERFLOW

Especially suited for slab floor or crawl space homes, the Modernaire gas fired counterflow is completely assembled and wired at the factory.

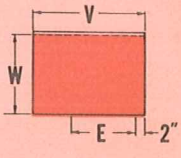
DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENING		FLUE		FILTER SIZES	PIPE SIZE NAT. MIXED MFD. LP.	SHIPPING WEIGHT		
	WD. A	DEPTH B	HT. C	WARM AIR* D x E	RETURN AIR L x M	DIA. H	HT. J			UNIT	BASE FOR COMBUSTIBLE FLOOR	BASE FOR COOLING COIL
GD 60-D GD 60	14″	23½″	66″	10 x 14	14 x 12	4″	66″	2-8 x 16	½″	160	8	25
GD 80-D GD 80	20″	24½″	66″	16 x 14	18 x 14	5″	66″	3-8 x 16	½″	205	10	35
GD 100-D GD 100	20″	27″	66″	16 x 16	18 x 18	5″	66″	2-10 x 20	½″	220	10	40
GD 125	22″	29″	68″	18 x 18	20 x 20	6″	68″	2-14 x 20	½″	260	10	45



SPECIFICATIONS

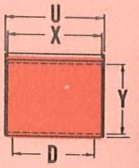
UNIT NUMBER	A.G.A. RATING-BTU/HR		BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE	CLEARANCES		
	INPUT	BONNET CAPACITY						SIDES & REAR	FRONT	FLUE PIPE
GD 60-D	60,000	48,000	9-6	DIRECT	½	500	0.12	0″	6″	6″
GD 60	60,000	48,000	9-6	3¼ x 6	⅛	500	0.12	0″	6″	6″
GD 80-D	80,000	64,000	9-7	Direct	1/12	660	0.12	0″	6″	6″
GD 80	80,000	64,000	9-7	3¼ x 6-37	⅛	660	0.12	0″	6″	6″
GD 100-D	100,000	80,000	9-9	Direct	⅛	825	0.15	0″	6″	6″
GD 100	100,000	80,000	9-9	3¼ x 6-37	⅙	825	0.15	0″	6″	6″
GD 125	125,000	100,000	10-8	3¼ x 6-39	¼	1030	0.20	0″	6″	6″



BASE FOR COOLING COILS

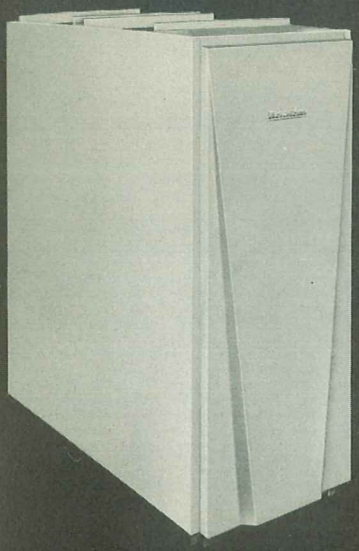
Capacity table at the right shows motor sizes and drives for units equipped with cooling coils. When sub-base for combustible floor is used opening in floor must be 1″ larger on all 4 sides than the warm air plenum on models 80D, 80, 100D and 100 units. Openings must be 1½″ larger on all 4 sides when using the 125 model.

FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y	DISCHARGE OPENING D x E
GD 60-D GD 60	20½″	25″	17″	19¾ x 15¾	16 x 14
GD 80-D GD 80	20½″	25″	17″	19¾ x 15¾	16 x 14
GD 100-D GD 100	20½″	27½″	17″	19¾ x 15¾	16 x 16
GD 125	22½″	29½″	17″	21¾ x 15¾	18 x 18



ALTERNATE MOTOR and DRIVES for cooling

UNIT NUMBER	MOTOR & DRIVE COMBINATION	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
GD 60	F2	9-6	4 x 5	¼	700	0.5
GD 80	F2	9-7	3¼ x 5-36	¼	800	0.5
GD 100	F2	9-9	3¼ x 5-36	¼	850	0.5
GD 100	F3	9-9	3¼ x 4-34	⅓	1000	0.5
GD 125	F3	10-8	3¼ x 5-38	⅓	1200	0.5



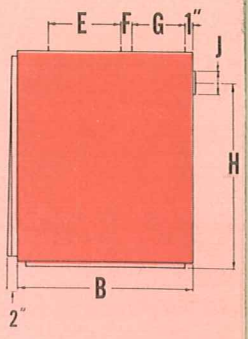
OIL FIRED BASEMENT MODEL

All Modernaire units thru 140,000 are shipped completely assembled and wired. The OB 196 unit is shipped in two cartons—warm air section with burner installed and the return air section with blower and motor assembled—requires only two wires to be attached to motor.

DIMENSIONS

UNIT NUMBER	CABINET A WIDTH	CABINET B DEPTH	CABINET C HEIGHT	PLENUM OPENINGS WARM AIR D x E	PLENUM OPENINGS RETURN D x G	DIM F	FLUE H HEIGHT	FLUE J DIA.	FILTERS	SHIPPING WEIGHT
OB 80-D	20″	40″	50″	18 x 14	18 x 14	2½″	41½	6″	16 x 25	300
OB 90	20″	40″	50″	18 x 14	18 x 14	2½″	41½	6″	1-10 x 20 1-15 x 20	300
OB 112	20″	43″	52″	18 x 18	18 x 14	1½″	43½	6″	1-10 x 20 1-20 x 20	330
OB 140	22″	48″	54″	20 x 20	20 x 16	2½″	45	7″	1-15 x 20 1-20 x 20	390
*OB 196	26″	56″	56″	24 x 22	24 x 22	2″	47	7″	2-20 x 25	470

*Assembled & Shipped in two cartons.

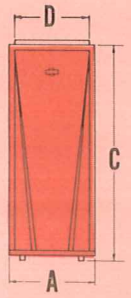


SPECIFICATIONS

UNIT NUMBER	RATINGS BY CS — 195 FIRING RATE GAL. PER HR.	RATINGS BY CS — 195 FIRING RATE B.T.U.	BONNET CAPACITY	BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE
OB 80-D	.72	100,000	80,000	9-9	DIRECT	1/6	825	0.15 IN.
OB 90	.8	112,000	90,000	9-9	3¼ x 5-34	¼	925	0.2 IN.
OB 112	1.0	140,000	112,000	10-8	3¼ x 5-35	⅓	1150	0.2 IN.
OB 140	1.25	175,000	140,000	12-9	3¼ x 6-40	⅓	1450	0.2 IN.
OB 196	1.75	245,000	196,000	12-12	3¼ x 6-41	½	1850	0.2 IN.

MATCHING PLENUMS (FOR COOLING COILS)

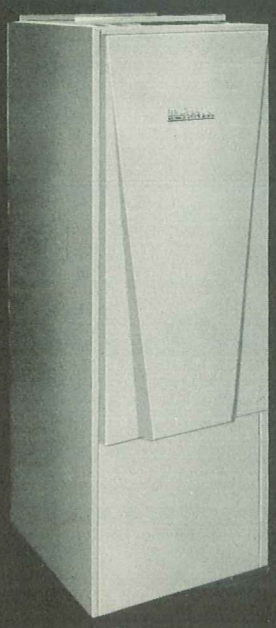
FOR USE WITH UNITS NUMBER	WIDTH	DEPTH	HEIGHT	DOOR OPENINGS FRONT	DOOR OPENINGS REAR	PLENUM SIZE WARM AIR	PLENUM SIZE RETURN
OB 80-D OB 80	20″	40″	32″	19¾ x 15¾	19¾ x 15¾	20 x 25	20 x 15
OB 112	20″	43″	30″	19¾ x 15¾	19¾ x 15¾	20 x 26	20 x 17
OB 140	22″	48″	28″	21¾ x 20¾	21¾ x 15¾	22 x 28½	22 x 19½
OB 196	26″	32″	26″	23¾ x 20¾		26 x 32	
OB 196	26″	24″	26″		23¾ x 15¾		26 x 24



Capacity table at the right shows motor sizes and drives for units equipped with cooling coils.

ALTERNATE MOTOR and DRIVES for cooling unit combinations

UNIT NUMBER	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
OB 80	9-9	3¼ x 5-35	¼	840	0.5 IN.
OB 80	9-9	4 x 5-35	⅓	1100	0.5 IN.
OB 112	10-8	3¼ x 5-35	⅓	1200	0.5 IN.
OB 140	12-9	3¼ x 6-40	½	1600	0.5 IN.
OB 140	12-9	3¼ x 5-39	¾	1850	0.5 IN.
OB 196	12-12	3¼ x 5-39	¾	2000	0.5 IN.

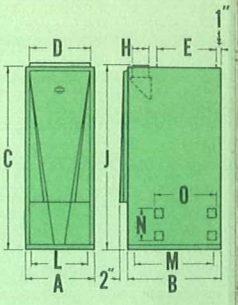


OIL FIRED HI-BOY

Smartly styled in attractive green finish, the oil fired HI-BOY is approved for zero clearance on both sides and rear. Offers flexible installation when combined with narrow return air drop.

DIMENSIONS

UNIT NUMBER	CABINET WIDTH A	CABINET DEPTH B	CABINET HEIGHT C	PLENUM OPENINGS WARM AIR D x E	PLENUM OPENINGS RETURN BOTTOM L x M	PLENUM OPENINGS RETURN SIDE N x O	FLUE DIA. H	FLUE HEIGHT J	FILTER SIZES	SHIPPING WEIGHT UNIT	SHIPPING WEIGHT SIDE AIR CABINET	SHIPPING WEIGHT MATCHING PLENUM
OU 72-D OU 80	20″	27″	58″	18 x 18	16 x 24	12 x 18	6″	58″	16 x 25	255	25	30
OU 84-D OU 95	22″	29″	58″	20 x 20	16 x 24	12 x 20	6″	58″	1-16 x 20 1-16 x 8	270	30	30
OU 112	22″	29″	68″	20 x 20	16 x 24	16 x 20	6″	68″	2-14 x 20	310	35	30



SPECIFICATIONS

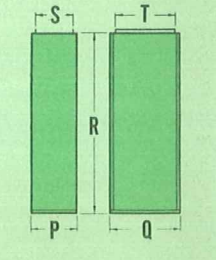
UNIT NUMBER	RATING BY CS-195 FIRING RATE GAL. PER HR.	RATING BY CS-195 BONNET CAPACITY	BLO.	DRIVE	MTR.	C. F. M. @85° RISE	STATIC PRESSURE	CLEARANCES SIDES & REAR	CLEARANCES FRONT	CLEARANCES FLUE PIPE	CLEARANCES PLENUM TOP
OU 72-D	.65	72,000	9-7	Direct	⅛	750	0.12	0″	6″	6″	1″
OU 80	.72	80,000	9-7	3¼ x 6-36	⅛	830	0.15	0″	6″	6″	1″
OU 84-D	.75	84,000	9-9	Direct	⅙	865	0.20	0″	6″	6″	1″
OU 95	.85	95,000	9-9	3¼ x 6-36	⅙	980	0.20	0″	6″	6″	1″
OU 112	1.0	112,000	10-8	3¼ x 6-38	¼	1150	0.20	0″	6″	6″	1″

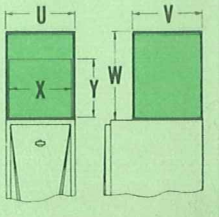
SIDE RETURN AIR CABINET

FOR USE WITH UNIT NUMBER	WIDTH P	DEPTH Q	HEIGHT R	PLENUM OPENING S x T
OU 72-D OU 80	10″	20″	58″	8 x 18
OU 84-D OU 95	10″	22″	58″	8 x 20
OU 112	10″	22″	68″	8 x 20

MATCHING PLENUM (cooling coils)

FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y
OU 72-D OU 80	20″	22″	24″	19¾ x 15¾
OU 84-D OU 95	22″	22″	24″	21¾ x 15¾
OU 112	22″	22″	24″	21¾ x 15¾

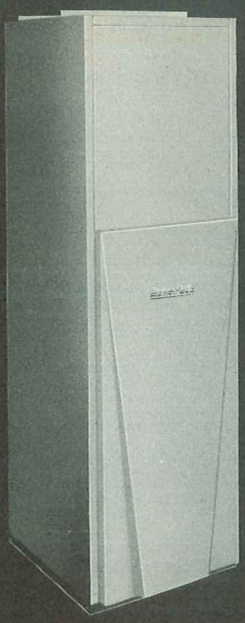




Capacity table at right shows motor sizes and drives for units equipped with cooling coils.

ALTERNATE MOTORS and DRIVES for cooling unit combinations

UNIT NUMBER	MOTOR & DRIVE COMBINATION	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
OU 80	F2	9-7	3¼ x 5-34	¼	800	0.5
OU 95	F2	9-9	3¼ x 6-36	¼	850	0.5
OU 95	F3	9-9	3¼ x 5-34	⅓	1200	0.5
OU 112	F3	10-8	3¼ x 6-38	⅓	1200	0.5



OIL FIRED COUNTERFLOW

All controls except thermostat are completely assembled and wired at the factory. Only the thermostat and barometric draft control are mounted in the field. Fast, easy installation assures you quality heating at a low price.

DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS			FLUE	FILTER SIZES	SHIPPING WEIGHT		
	WIDTH A	DEPTH B	HEIGHT C	WARM AIR* D x E	RETURN AIR L x M	DIA. H	HEIGHT J		UNIT	BASE FOR COMBUSTIBLE FLOOR	BASE FOR COOLING COIL
OD 72-D OD 80	20″	24½″	66″	16 x 14	18 x 14	6″	66″	3-8 x 16	255	10	35
OD 84-D OD 95	20″	27″	66″	16 x 16	18 x 18	6″	66″	1-10 x 20 1-14 x 20	270	10	40
OD 112	22″	29″	68″	18 x 18	20 x 20	6″	68″	2-14 x 20	310	10	45

SPECIFICATIONS

UNIT NUMBER	RATING BY CS-195		BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE	CLEARANCES		
	FIRING RATE GAL. PER HR.	BONNET CAPACITY						SIDES & REAR	FRONT	FLUE PIPE
OD 72-D	.65	72,000	9-7	Direct	1/6	750	0.15	0″	6″	6″
OD 80	.7	80,000	9-7	3¼ x 5-36	1/6	810	0.15	0″	6″	6″
OD 90-D	.75	90,000	9-9	Direct	1/6	865	0.15	0″	6″	6″
OD 95	.85	95,000	9-9	3¼ x 5-36	¼	980	0.20	0″	6″	6″
OD 112	1.0	112,000	10-8	3¼ x 5-38	⅓	1150	0.20	0″	6″	6″

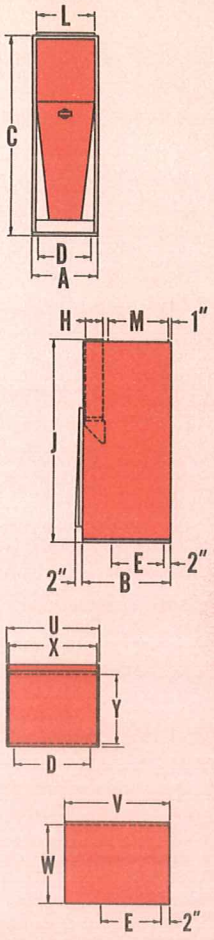
BASE FOR COOLING COILS

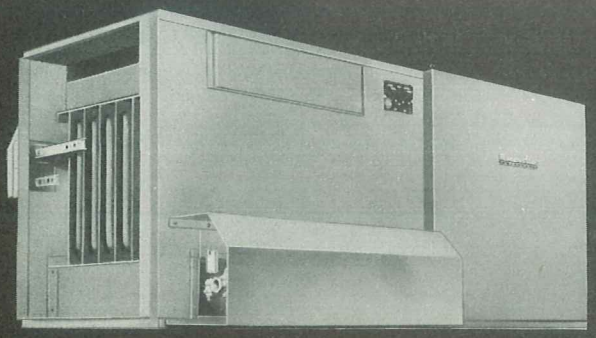
FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y	DISCHARGE OPENING D x E
OD 72-D OD 72	20½″	25″	17″	19¾ x 15¾	16 x 14
OD 84-D OD 95	20½″	27½″	17″	19¾ x 15¾	16 x 16
OD 112	22½″	29½″	17″	21¾ x 15¾	18 x 18

ALTERNATE MOTORS and DRIVES for cooling unit combinations

UNIT NUMBER	MOTOR & DRIVE COMBINATION	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
OD 72	F2	9-7	3¼ x 5-36	¼	800	0.5
OD 95	F2	9-9	3¼ x 5-36	¼	850	0.5
OD 95	F3	9-9	3¼ x 4-34	⅓	1000	0.5
OD 112	F3	10-8	3¼ x 5-38	⅓	1200	0.5

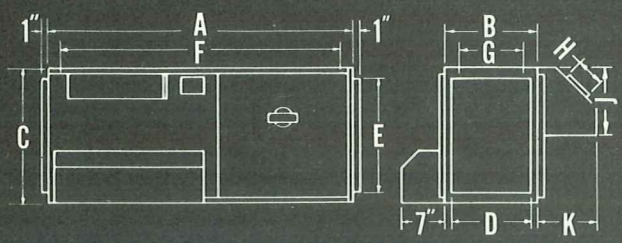
When sub-base for combustible floor is used opening in floor must be 1″ larger on all 4 sides than the warm air plenum on models 80D, 80, 100D and 100 units. Openings must be 1½″ larger on all 4 sides when using the 125 model.





GAS FIRED HORIZONTAL

For use in attic, crawl space, basement or commercial application. All units are completely assembled and wired at factory and provided with large quiet blowers.



DIMENSIONS

UNIT NUMBER	LENGTH A	WIDTH B	HEIGHT C	PLENUM OPENINGS		HANGER SPACING		FLUE		
				WIDTH D	DEPTH E	F	G	DIAMETER H	HOOD HEIGHT J	HOOD DEPTH K
GH 70-D GH 70	52	12½	22	10	18	49	9	5	8½	8
GH 85-D GH 85	52	15	22	12	18	49	11	5	8½	8
GH 100-D GH 100	52	17	22	14	18	49	14	5	8½	8
GH 120	55	19	23½	16	20	52	16	6	11	9½
GH 140	55	21½	23½	18	20	52	18	6	11	9½

SPECIFICATIONS

UNIT NUMBER	A. G. A. RATING BTU/HR		BLOWER	DRIVE	MOTOR	FILTERS	C. F. M. @85° Rise	STATIC PRESSURE
	INPUT	BONNET						
GH 70-D	70,000	56,000	9-7	Direct	1/12	14 x 20	575	.12 IN.
GH 70	70,000	56,000	9-7	3¼ x 7-39	⅛	14 x 20	575	.12 IN.
GH 85-D	85,000	68,000	9-7	Direct	1/12	2-10 x 20	700	.15 IN.
GH 85	85,000	68,000	9-7	3¼ x 7-39	⅛	2-10 x 20	700	.15 IN.
GH 100-D	100,000	80,000	10-8	Direct	⅛	2-10 x 20	825	.15 IN.
GH 100	100,000	80,000	10-8	3¼ x 7-42	1/6	2-10 x 20	825	.15 IN.
GH 120	120,000	96,000	10-10	3¼ x 8-43	¼	2-14 x 20	990	.20 IN.
GH 140	140,000	112,000	12-12	3¼ x 7-43	⅓	2-14 x 20	1150	.20 IN.

Clearances: Bottom — zero. Top, Sides, and Vent — 6″.

ALTERNATE MOTORS and DRIVES for cooling unit combinations

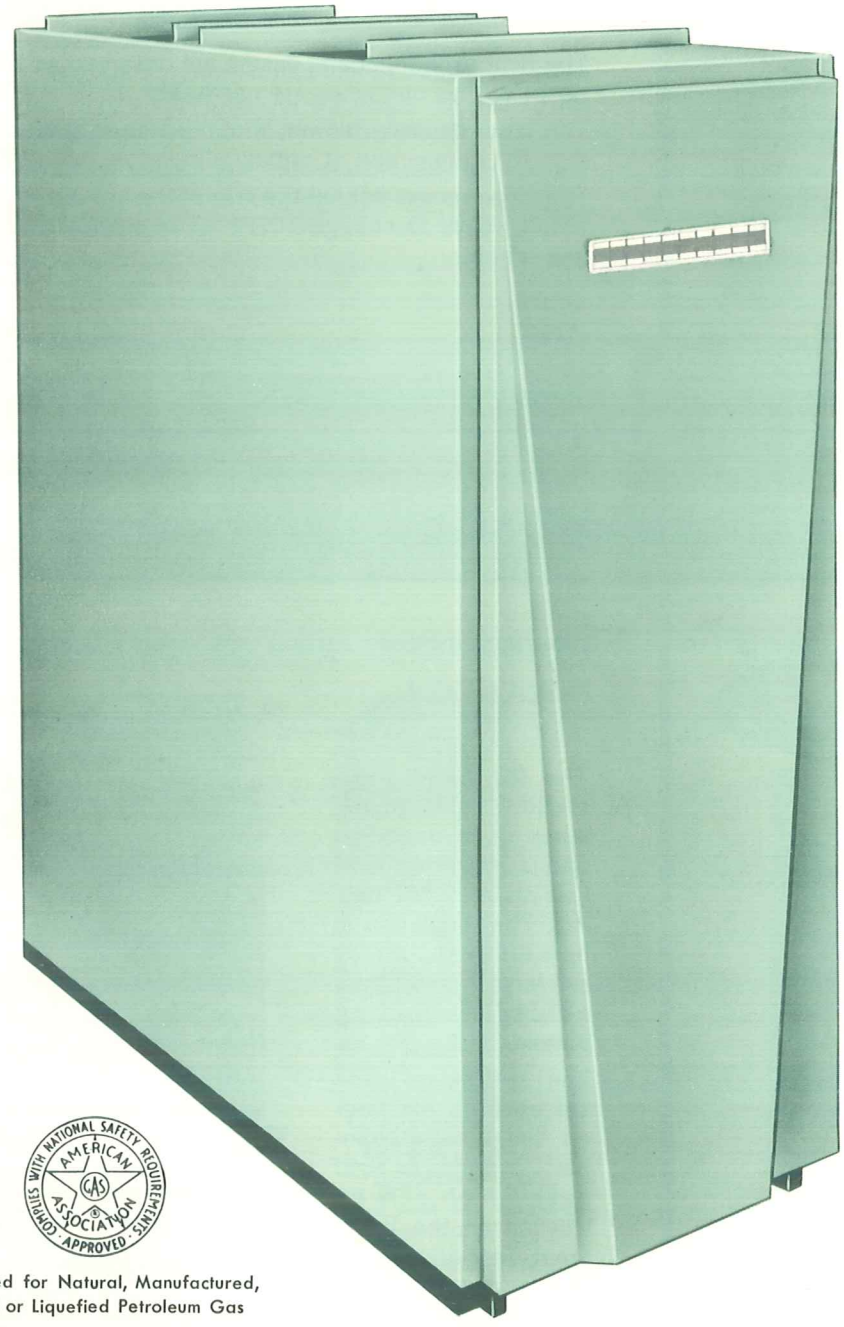
TONS COOLING	UNIT NUMBER	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
2	GH 70	9-7	3¼ x 5-35	¼	800	0.5 IN.
2	GH 85	9-7	3¼ x 5-35	¼	800	0.5 IN.
2	GH 100	10-8	3¼ x 6-40	¼	900	0.5 IN.
3	GH 100	10-8	3¼ x 5-38	⅓	1200	0.5 IN.
3	GH 120	10-10	3¼ x 6-40	⅓	1200	0.5 IN.
4	GH 120	10-10	3¼ x 5-38	½	1600	0.5 IN.
3	GH 140	12-12	3¼ x 6-41	⅓	1200	0.5 IN.
4	GH 140	12-12	3¼ x 6-42	½	1600	0.5 IN.
5	GH 140	12-12	3¼ x 5-40	¾	1900	0.5 IN.

Capacity table above shows sizes and drives of motor for units equipped with cooling coils.

Printed in U.S.A.

BTS GAS FIRED Basement Model

HEATING AND AIR CONDITIONING UNITS



AMERICAN GAS ASSOCIATION · APPROVED · COMPLIES WITH NATIONAL SAFETY REQUIREMENTS

Approved for Natural, Manufactured, Mixed or Liquefied Petroleum Gas

Custom Built For Efficient, Trouble-Free Operation ...

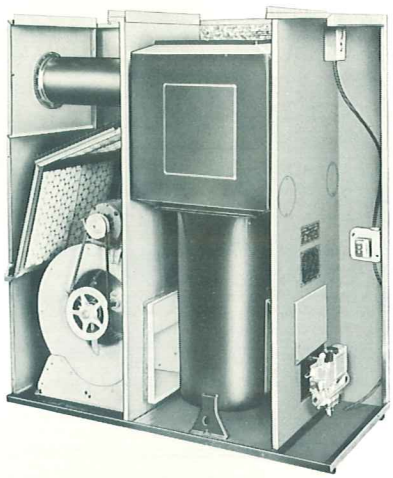
SAFELY PACKAGED COMPLETE IN ONE CARTON

The units, through 160,000 B. T. U. input, are shipped in one carton with the burner and all of the controls completely assembled and completely wired at the factory.

The 200,000 input unit is shipped in two cartons. The warm air section has burner installed and all controls wired. The return air-section has blower and motor assembled with two wires to be attached to motor.

Well designed spacers hold the unit safely in the carton for easy handling and shipping.

COMPACT ARRANGEMENT OF COMPONENT PARTS



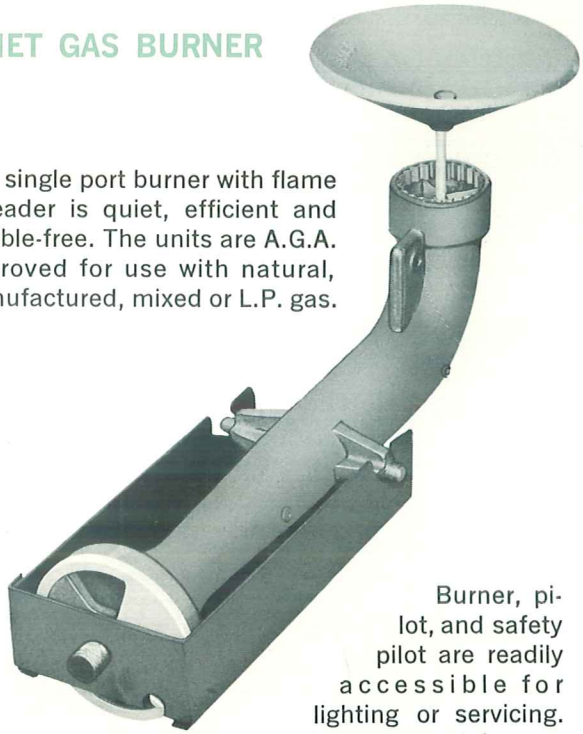
The heat exchanger and casing are designed so that no air baffles or shields are necessary.

The large capacity blower, mounted on rubber and with felt connection at outlet, is quiet in operation.

The large access door at the rear of the unit provides ample space to change filters, oil or service blower and motor.

HEATING AND AIR CONDITIONING UNITS

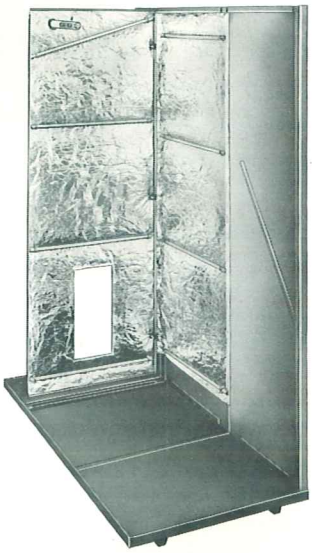
QUIET GAS BURNER



The single port burner with flame spreader is quiet, efficient and trouble-free. The units are A.G.A. approved for use with natural, manufactured, mixed or L.P. gas.

Burner, pilot, and safety pilot are readily accessible for lighting or servicing. They can be removed in one piece after loosening the pilot gas line, and the thermocouple lead.

FIBERGLASS INSULATION



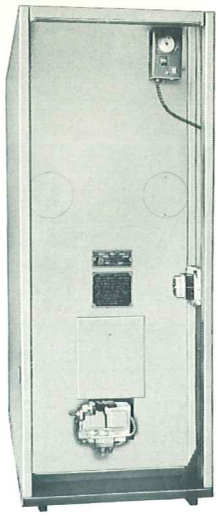
The foil faced fiberglass insulation assures quiet operation and a minimum heat loss through the casing. The insulation is held firmly in place by full length metal bars across the casing panels.

The solid steel base set up from the floor on full length channels, provides a rigid base which can be levelled on the basement floor and needs no grouting.

The tough baked enamel applied to the casings assures a bright, durable finish.

No detail has been overlooked to make the units economical to install, accessible to service, and comfortable to live with.

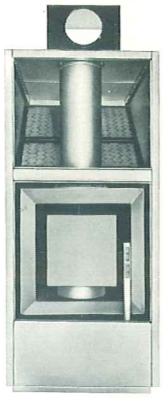
ALL CONTROLS ARE ENCLOSED

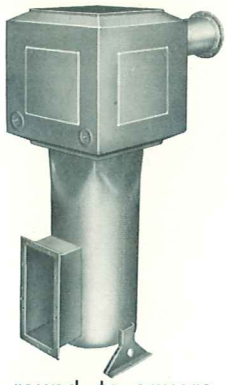


The burner, valves, regulator, manifold, blower and limit switch and junction box are all mounted inside the full length vestibule. All are easily accessible for cleaning or service.

All controls, except the thermostat, are completely assembled and completely wired at the factory. Only the thermostat and draft diverter are mounted on the job.

WELL DESIGNED* HEAT EXCHANGER





The smooth flowing lines of the round to square design of the heat exchanger form the first step in the design.

The SQUARE radiator around the SQUARE body in the SQUARE casing permits uniform air passages through the unit between the heating surfaces. This brings the air into close contact with all of the heating surface. The tapered top and bottom surfaces of the radiator present less resistance to the smooth flow of air through the unit. There are no "circle in a square" corners in the design.

*PATENTS PENDING

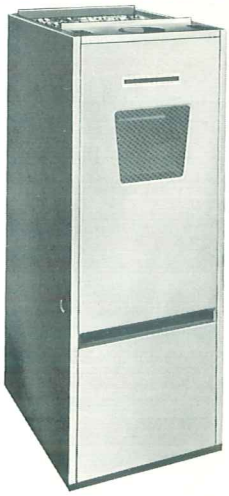
CUSTOM BUILT FOR EFFICIENT, TROUBLE FREE OPERATION

HEATING AND COOLING COMBINATION

Matching plenum and cooling coil can be installed with the units to make a complete winter and summer combination heating and cooling unit. Standard blowers have sufficient capacity for operating at the higher static pressures encountered when cooling coil is added. Only the motor and drive need be changed.

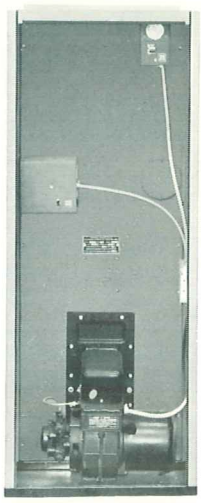
It is practical to install the heating unit and the matching plenum now and add cooling later.

HORIZONTAL HI-BOY AND COUNTERFLOW UNITS



The units are available in Horizontal, Hi-Boy and Counterflow Models to suit any installation.

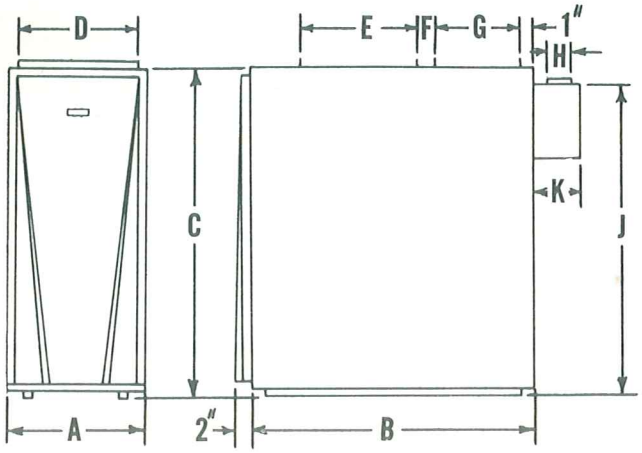
OIL FIRED UNITS



It is possible to convert your unit to burn oil without disturbing unit or duct work. An oil burner, firebox, and primary control can be installed in place of the gas burner at a reasonable cost.

HEATING & AIR CONDITIONING UNITS

Units are approved by the American Gas Association for use with natural, mixed, manufactured or L.P. gas. They are approved for both regular and high static pressure installations. Quiet, safe, trouble-free operation is assured.



DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS		DIM. F	FLUE			FILTERS	SHIPPING WT.	PIPE SIZE	
	A WIDTH	B DEPTH	C HEIGHT	D x E WARM AIR	D x G RETURN		H DIA.	J HEIGHT	K DEPTH			NAT. MIX. L.P.	MFD.
BTS 100 D BTS 100	20"	40"	50"	18 x 14	18 x 14	2½"	5"	46"	7"	16 x 25	240	½	½
BTS 125	20"	43"	52"	18 x 18	18 x 14	1½"	5"	48"	7"	1-10 x 20 1-15 x 20	270	½	¾
BTS 160	22"	48"	54"	20 x 20	20 x 16	2½"	6"	50"	8"	1-15 x 20 1-20 x 20	330	½	¾
BTS 200*	26"	56"	56"	24 x 22	24 x 22	2"	6"	51½"	8"	2-20 x 25	420	¾**	1

*Assembled & Shipped in two cartons. **½" on L. P. Gas.

SPECIFICATIONS

UNIT NUMBER	A. G. A. RATING-BTU/HR.		BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE
	INPUT	BONNET CAPACITY					
BTS 100 D	100,000	80,000	9-9	DIRECT	⅛	825 *	0.15 IN. *
BTS 100	100,000	80,000	9-9	3¼ x 6-35	⅛	825 *	0.15 IN. *
BTS 125	125,000	100,000	10-8	3¼ x 6-37	¼	1030	0.2 IN.
BTS 160	160,000	128,000	12-9	3¼ x 7-41	⅓	1325	0.2 IN.
BTS 200	200,000	160,000	12-12	3¼ x 7-42	½	1650	0.2 IN.

*A. G. A. Test Conditions — Units will deliver same C. F. M. at 0.2 in S. P.

MATCHING PLENUMS (FOR COOLING COILS)

PLENUM NUMBER	FOR USE WITH UNITS NUMBER	WIDTH	DEPTH	HEIGHT	DOOR OPENINGS		PLENUM SIZE	
					FRONT	REAR	WARM AIR	RETURN
BT 100	BTS 100 D BTS 100	20"	40"	32"	19¾ x 15¾	19¾ x 15¾	20 x 25	20 x 15
BT 125	BTS 125	20"	43"	30"	19¾ x 15¾	19¾ x 15¾	20 x 26	20 x 17
BT 160	BTS 160	22"	48"	28"	21¾ x 20¾	21¾ x 15¾	22 x 28½	22 x 19½
BT 200 W	BTS 200	26"	32"	26"	23¾ x 20¾"		26 x 32	
BT 200 R	BTS 200	26"	24"	26"		23¾ x 15¾		26 x 24

ALTERNATE MOTORS and DRIVES for cooling unit combinations

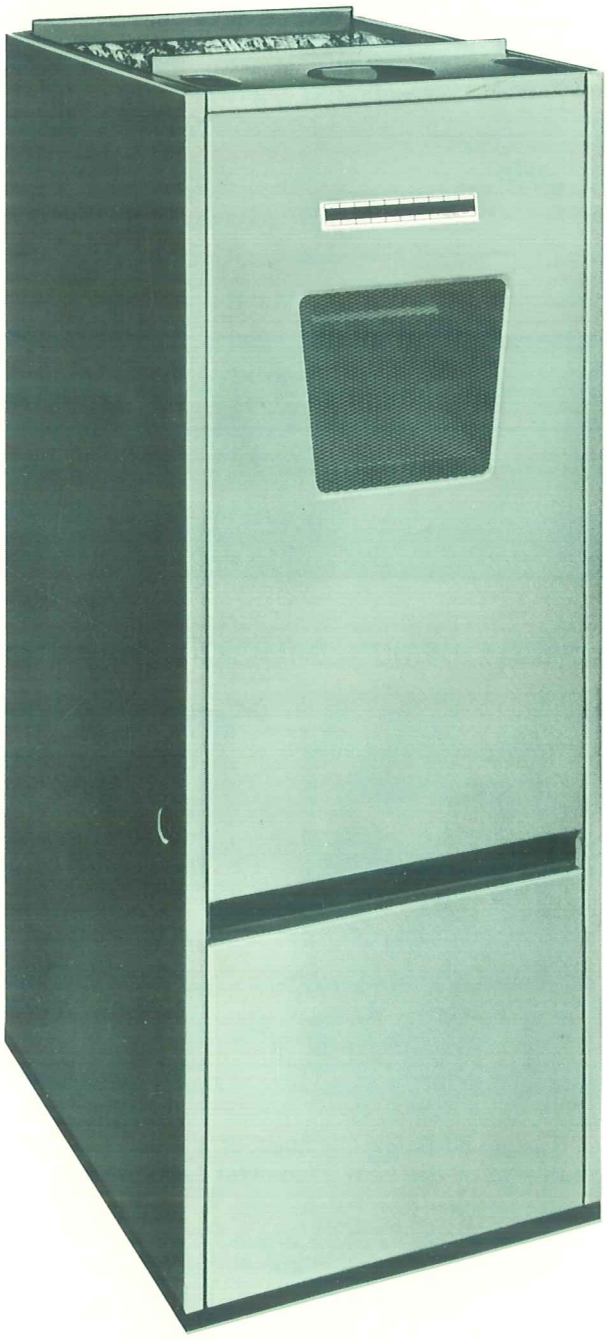
UNIT NUMBER	TONS COOLING	BLOWER (Standard)	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
BTS 100	2	9-9	3¼ x 5-35	¼	840	0.5 IN.
BTS 100	3	9-9	4 x 5-34	⅓	1100	0.5 IN.
BTS 125	2	10-8	3¼ x 5-35	⅓	1050	0.5 IN.
BTS 125	3	10-8	3¼ x 5-35	⅓	1200	0.5 IN.
BTS 160	3	12-9	3¼ x 6-40	⅓	1450	0.5 IN.
BTS 160	4	12-9	3¼ x 6-40	½	1600	0.5 IN.
BTS 160	5	12-9	3¼ x 5-39	¾	1850	0.5 IN.
BTS 200	4	12-12	3¼ x 7-42	½	1650	0.5 IN.
BTS 200	5	12-12	3¼ x 5-39	¾	2000	0.5 IN.

Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

HTS GAS FIRED Hi-Boy Model

HEATING AND AIR CONDITIONING UNITS



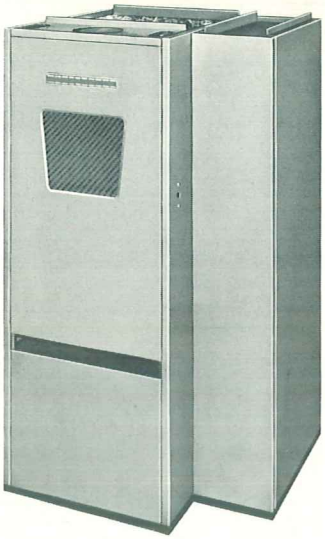
Custom Built For Efficient, Trouble-Free Operation ...

COMPLIES WITH NATIONAL SAFETY REQUIREMENTS · AMERICAN GAS ASSOCIATION · APPROVED

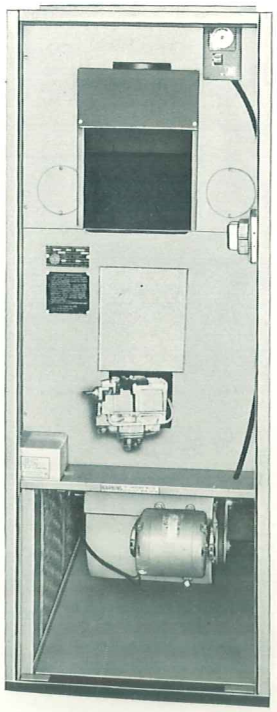
Approved for Natural, Manufactured, Mixed or Liquefied Petroleum Gas

SMARTLY STYLED BAKED ENAMEL FINISH

The smart styled straight line design of the unit with a neutral green finish makes an attractive appearance in any installation. The side return air cabinet shown below can be added for installation of the Hi-Boy in the basement. Both the unit and the side return air cabinet have very hard durable baked enamel finish. The Hi-Boy unit is approved for zero clearance on both sides and rear. Combined with the narrow side air return cabinet, which can be attached to either side, it makes a very flexible combination that will fit any installation requirement.



ENCLOSED CONTROLS ACCESSIBLE FOR SERVICE

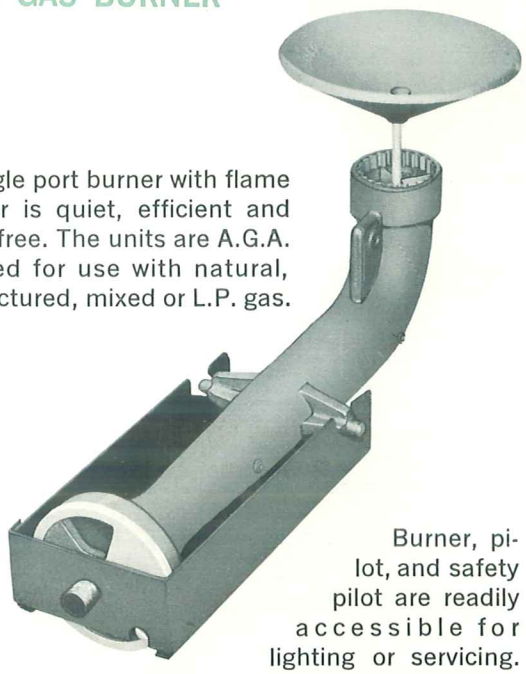


The burner, valves, regulator, manifold, blower and limit switch, junction box and down draft diverter, are all mounted inside the full length vestibule. All are easily accessible for cleaning or service. All controls except the thermostat are completely assembled are completely wired at the factory. Only the thermostat is mounted and wired on the job.

HEATING AND AIR CONDITIONING UNITS

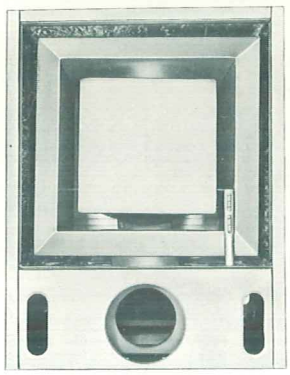
QUIET GAS BURNER

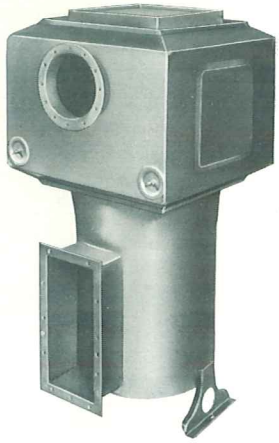
The single port burner with flame spreader is quiet, efficient and trouble-free. The units are A.G.A. approved for use with natural, manufactured, mixed or L.P. gas.



Burner, pilot, and safety pilot are readily accessible for lighting or servicing. They can be removed in one piece after loosening the pilot gas line, and the thermocouple lead.

WELL DESIGNED* HEAT EXCHANGER



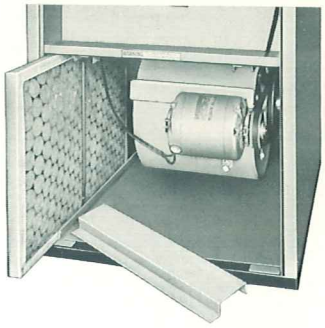


The smooth flowing lines of the round to square design of the heat exchanger form the first step in the design.

The SQUARE radiator around the SQUARE body in the SQUARE casing permits uniform air passages through the unit between the heating surfaces. This brings the air into close contact with all of the heating surface. The tapered top and bottom surfaces of the radiator present less resistance to the smooth flow of air through the unit. There are no "circle in a square" corners in the design.

*PATENTS PENDING

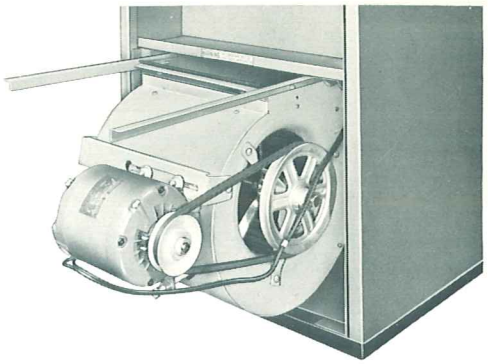
FILTER ARRANGEMENT FITS ALL JOBS



Return air can be brought in on either side or through the bottom of the unit. Filter and filter channels are shipped installed on one side of the unit and the bottom panel is in place. Even when the unit is set on an uneven floor, no grouting is necessary.

If return air is to be brought in on the other side of the furnace, filter channels can be installed on the opposite side. If return air is to be brought in through bottom of unit, panel covering bottom opening can be removed and filter channels installed in bottom opening.

LARGE QUIET BLOWERS



The large capacity quiet blower provides adequate air delivery for comfortable, carefree heating. Blowers have capacity so that, with larger motors, they will provide air enough for the addition of cooling. Blower can be removed for cleaning or servicing by removing one screw and sliding blower assembly out on channels.

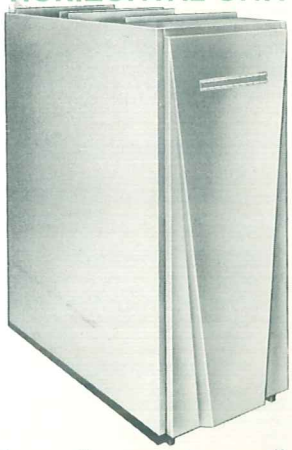
CUSTOM BUILT FOR EFFICIENT, TROUBLE FREE OPERATION

HEATING AND COOLING COMBINATION

Matching plenum and cooling coil can be installed with the units to make a complete winter and summer combination heating and cooling unit. Standard blowers have sufficient capacity for operating at the higher static pressures encountered when cooling coil is added. Only the motor and drive need be changed.

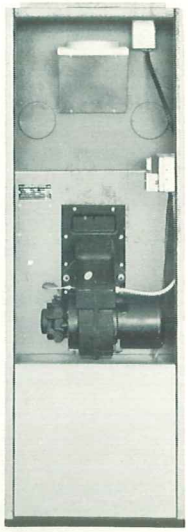
It is practical to install the heating unit and the matching plenum now and add cooling later.

BASEMENT COUNTERFLOW AND HORIZONTAL UNITS



The units are also available in Basement,Counterflow and Horizontal Models to suit any installation.

OIL FIRED UNITS

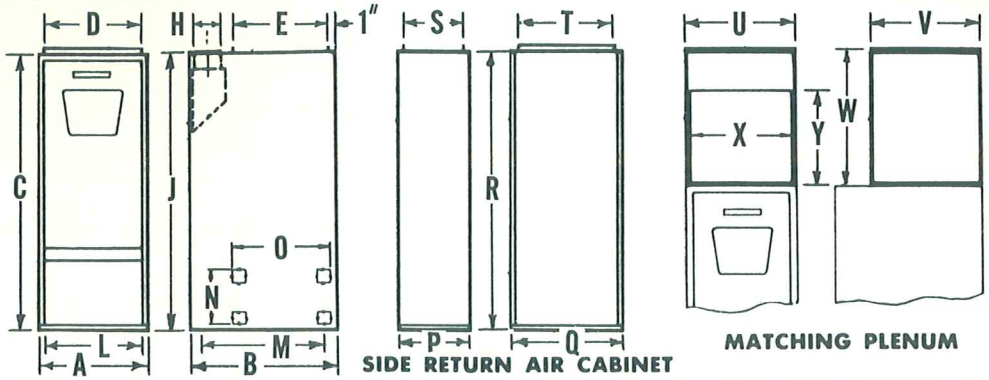


It is possible to convert your unit to burn oil without disturbing unit or duct work.

An oil burner, firebox, and primary control can be installed in place of the gas burner at a reasonable cost.

HEATING & AIR CONDITIONING UNITS

Units are approved by the American Gas Association for use with natural, mixed, manufactured or Propane gas. They are approved for both regular and high static pressure installations. Quiet, safe, trouble-free operation is assured.



SIDE RETURN AIR CABINET

MATCHING PLENUM

DIMENSIONS

* UNIT NUMBER	CABINET WIDTH A	CABINET DEPTH B	CABINET HEIGHT C	PLENUM OPENINGS WARM AIR D x E	PLENUM OPENINGS RETURN BOTTOM L x M	PLENUM OPENINGS RETURN SIDE N x O	FLUE DIA. H	FLUE HEIGHT J	FILTER SIZES	PIPE SIZE NAT. MIXED MFD. L.P.	SHIPPING WEIGHT UNIT	SHIPPING WEIGHT SIDE AIR CABINET
HTS 60 D HTS 60	14"	23½"	60"	12 x 14	12 x 16	12 x 18	4"	60"	14 x 20	½"	160	25
HTS 80 D HTS 80	20"	27"	58"	18 x 18	16 x 24	12 x 18	5"	58"	16 x 25	½"	210	25
HTS 100 D HTS 100	22"	29"	58"	20 x 20	16 x 24	12 x 20	5"	58"	16 x 25	½"	230	30
HTS 125	22"	29"	68"	20 x 20	16 x 24	16 x 20	6"	68"	20 x 25	½"	270	35

SPECIFICATIONS

* UNIT NUMBER	A. G. A. RATING-BTU/HR INPUT	A. G. A. RATING-BTU/HR BONNET CAPACITY	BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	*STATIC PRESSURE	CLEARANCES SIDES & REAR	CLEARANCES FRONT	CLEARANCES FLUE PIPE	CLEARANCES PLENUM TOP
HTS 60 D	60,000	48,000	9-6	Direct	½12	500	0 12	1"**	6"	6"	1"
HTS 60	60,000	48,000	9-6	3¼ x 6-36	⅛	500	0.12	1"**	6"	6"	1"
HTS 80 D	80,000	64,000	9-7	Direct	½12	660	0 12	0"	6"	6"	1"
HTS 80	80,000	64,000	9-7	3¼ x 8-39	⅛	660	0.12	0"	6"	6"	1"
HTS 100 D	100,000	80,000	9-9	Direct	⅛	825	0.15	0"	6"	6"	1"
HTS 100	100,000	80,000	9-9	3¼ x 7-38	⅛	825	0.15	0"	6"	6"	1"
HTS 125	125,000	100,000	9-9	3¼ x 6-36	¼	1030	0.20	0"	6"	6"	1"

*A.G.A. TEST CONDITIONS. ALL UNITS WILL DELIVER ABOVE C.F.M. AT 0.2 IN. S.P.

**ZERO CLEARANCE PERMITTED WITH TYPE B FLUE

SIDE RETURN AIR CABINET

* FOR USE WITH UNIT NUMBER	WIDTH P	DEPTH Q	HEIGHT R	PLENUM OPENING S x T
HTS 60 D HTS 60	10"	16"	60"	8 x 14
HTS 80 D HTS 80	10"	20"	58"	8 x 18
HTS 100 D HTS 100	10"	22"	58"	8 x 20
HTS 125	10"	22"	68"	8 x 20

MATCHING PLENUM (for cooling coils)

* FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y
HTS 60 D HTS 60	17"	22"	24"	16¾ x 12
HTS 80 D HTS 80	20"	22"	24"	19¾ x 15¾
HTS 100 D HTS 100	22"	22"	24"	21¾ x 15¾
HTS 125	22"	22"	24"	21¾ x 15¾

ALTERNATE MOTORS and DRIVES for cooling unit combinations

* UNIT NUMBER	TONS COOLING	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
HTS 60	2	9-6	4 x 5-3 5	¼	700	0.5
HTS 80	2	9-7	3¼ x 5-34	¼	800	0.5
HTS 100	2	9-9	3¼ x 6-36	¼	850	0.5
HTS 100	3	9-9	3¼ x 5-34	⅓	1200	0.5
HTS 125	2	9-9	3¼ x 6-36	¼	1030	0.5
HTS 125	3	9-9	3¼ x 5-34	⅓	1200	0.5

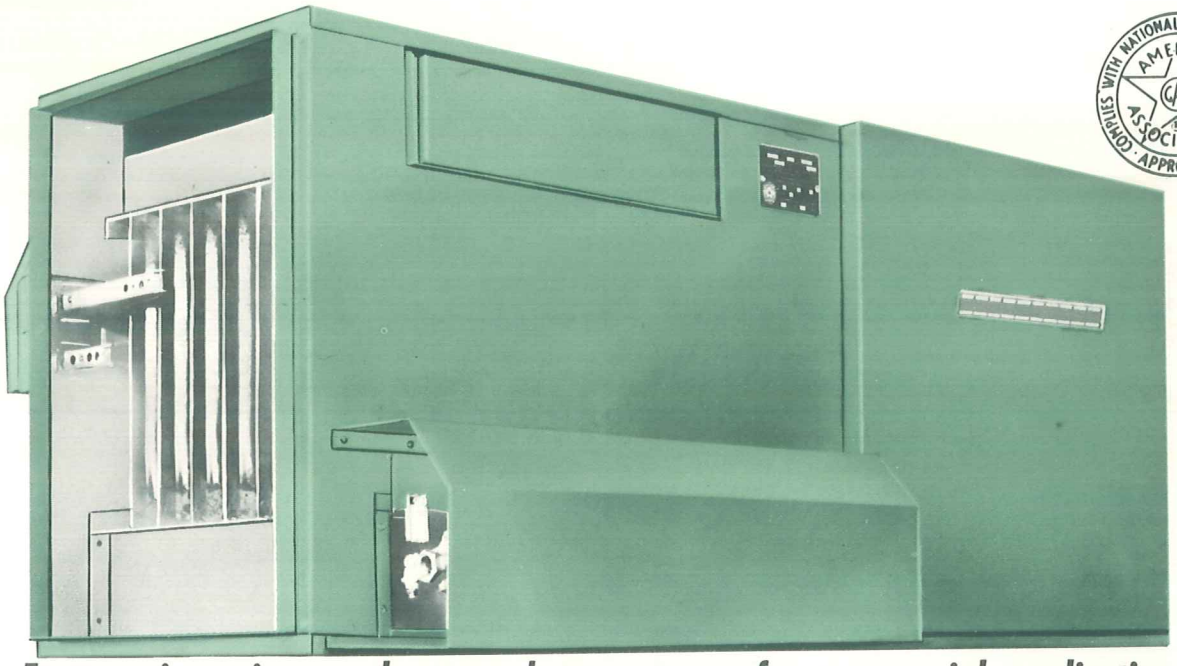
Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

* Note: Dimensions and specifications for HTS 50 and 50D are the same as HTS 60 and 60D, except input is 50,000 B.T.U./hr. Bonnet capacity is 40,000 B.T.U./hr. Drive is 3¼ x 7—38 for HTS 50.

NMS GAS FIRED Horizontal Model

HEATING AND AIR CONDITIONING UNITS



For use in attic, crawl space, basement, or for commercial application

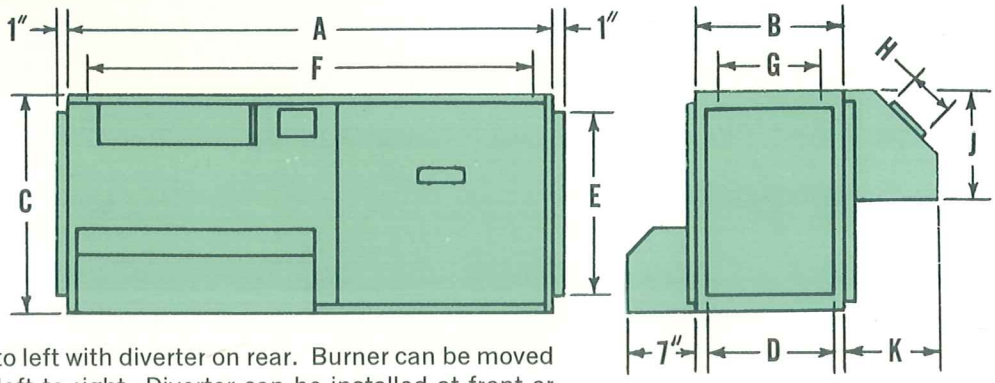
- These units are completely assembled and completely wired at the factory. Air direction and vent can be changed on the job to fit any application problem.
- They are sturdily built, compact in size, readily serviceable, for years of trouble free operation.
- Large quiet blowers provide ample capacity for use with cooling coils on the full range of sizes.
- They will help make an attractive installation on every application.

Custom Built For Efficient, Trouble-Free Operation By...

HEATING & AIR CONDITIONING UNITS

Units are approved by the American Gas Association for use with natural, mixed, manufactured or Propane gas. They are approved for both regular and high static pressure installations. Quiet, safe, trouble-free operation is assured.

Horizontal units are approved by the American Gas Association for use as unit heaters.



Units shipped for air passage right to left with diverter on rear. Burner can be moved to other side, making air passage left to right. Diverter can be installed at front or rear of the unit.

Approved for Natural, Manufactured, Mixed or Propane Gas

DIMENSIONS

UNIT NUMBER	LENGTH A	WIDTH B	HEIGHT C	PLENUM OPENINGS		HANGER SPACING		FLUE			PIPE SIZES		SHIPPING WEIGHT
				WIDTH D	DEPTH E	F	G	DIAMETER H	HOOD HEIGHT J	HOOD DEPTH K	NAT. MIXED L.P.	MFG. GAS	
NMS 70 D NMS 70	52	12½	22	10	18	49	9	5	8½	8	½"	½"	200
NMS 85 D NMS 85	52	15	22	12	18	49	11	5	8½	8	½"	½"	220
NMS 100 D NMS 100	52	17	22	14	18	49	14	5	8½	8	½"	¾"	240
NMS 120	55	19	23½	16	20	52	16	6	11	9½	½"	¾"	280
NMS 140	55	21½	23½	18	20	52	18	6	11	9½	½"	¾"	320

SPECIFICATIONS

UNIT NUMBER	A. G. A. RATING BTU/HR		BLOWER	DRIVE	MOTOR	FILTERS	C. F. M. @ 85° Rise	STATIC PRESSURE
	INPUT	BONNET						
NMS 70 D	70,000	56,000	9-7	Direct	⅓2	14 x 20	575	.12 IN.
NMS 70	70,000	56,000	9-7	3¼ x 7-39	⅙	14 x 20	575	.12 IN.
NMS 85 D	85,000	68,000	9-7	Direct	⅓2	2-10 x 20	700	.15 IN.
NMS 85	85,000	68,000	9-7	3¼ x 7-39	⅙	2-10 x 20	700	.15 IN.
NMS 100 D	100,000	80,000	9-9	Direct	⅛	2-10 x 20	825	.15 IN.
NMS 100	100,000	80,000	10-8	3¼ x 7-42	¼	2-10 x 20	825	.15 IN.
NMS 120	120,000	96,000	10-10	3¼ x 8-43	¼	2-14 x 20	990	.20 IN.
NMS 140	140,000	112,000	12-12	3¼ x 7-43	⅓	2-14 x 20	1150	.20 IN.

Clearances: Bottom – zero. Top, sides, and Vent – 6"

ALTERNATE MOTORS and DRIVES for cooling unit combinations

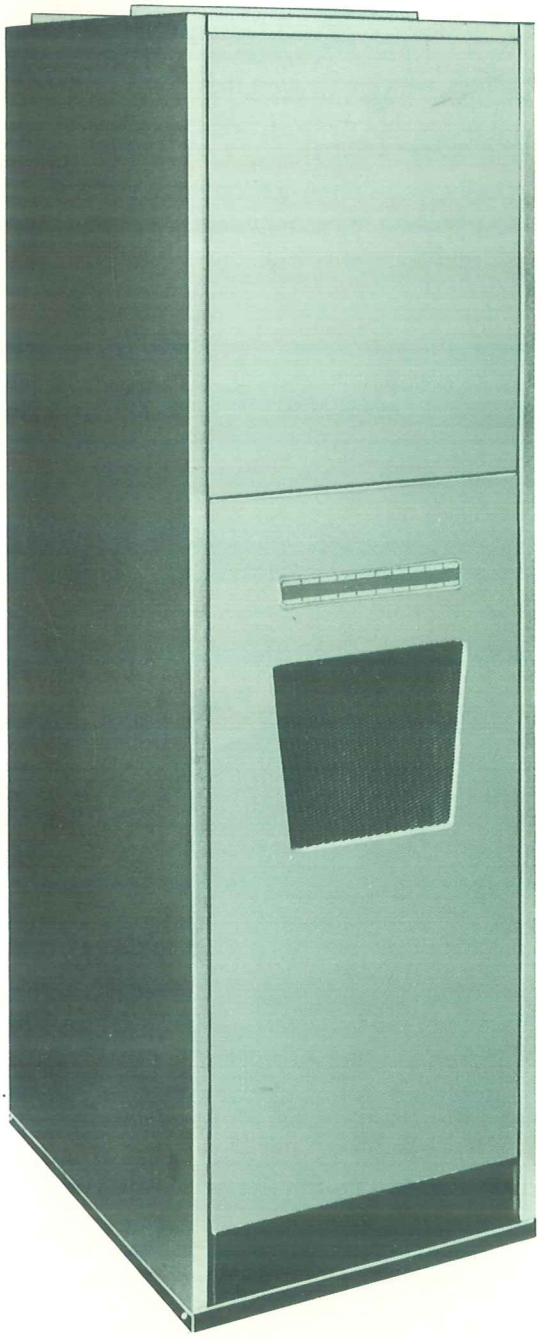
Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

TONS COOLING	UNIT NUMBER	BLOWER	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
2	NMS 70	9-7	3¼ x 5-35	¼	800	0.5 IN.
2	NMS 85	9-7	3¼ x 5-35	¼	800	0.5 IN.
2	NMS 100	10-8	3¼ x 6-40	¼	900	0.5 IN.
3	NMS 100	10-8	3¼ x 5-38	⅓	1200	0.5 IN.
3	NMS 120	10-10	3¼ x 6-40	⅓	1200	0.5 IN.
4	NMS 120	10-10	3¼ x 5-38	½	1600	0.5 IN.
3	NMS 140	12-12	3¼ x 6-41	⅓	1200	0.5 IN.
4	NMS 140	12-12	3¼ x 6-42	½	1600	0.5 IN.
5	NMS 140	12-12	3¼ x 5-40	¾	1900	0.5 IN.

WTS GAS FIRED Counterflow Model

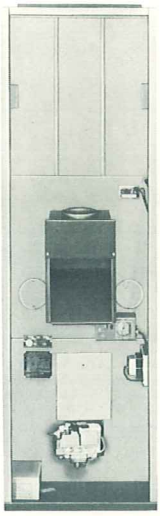
HEATING AND AIR CONDITIONING UNITS



Custom Built For Efficient, Trouble-Free Operation ...

Approved for Natural, Manufactured, Mixed or Liquefied Petroleum Gas

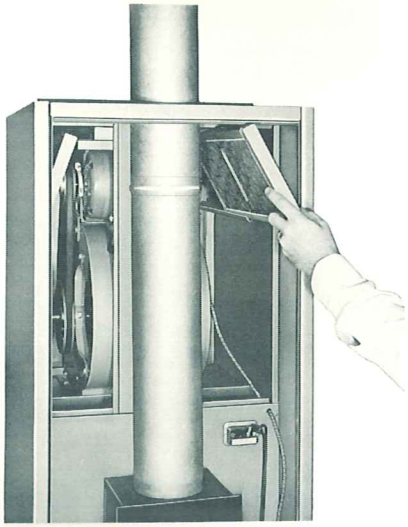
ALL CONTROLS ARE ENCLOSED



The burner, valves, regulator, manifold, blower and limit switch and junction box are all mounted inside the full length vestibule. All are easily accessible for cleaning or service.

All controls, except the thermostat, are completely assembled and completely wired at the factory. Only the thermostat is mounted on the job.

FILTERS EASILY REPLACED



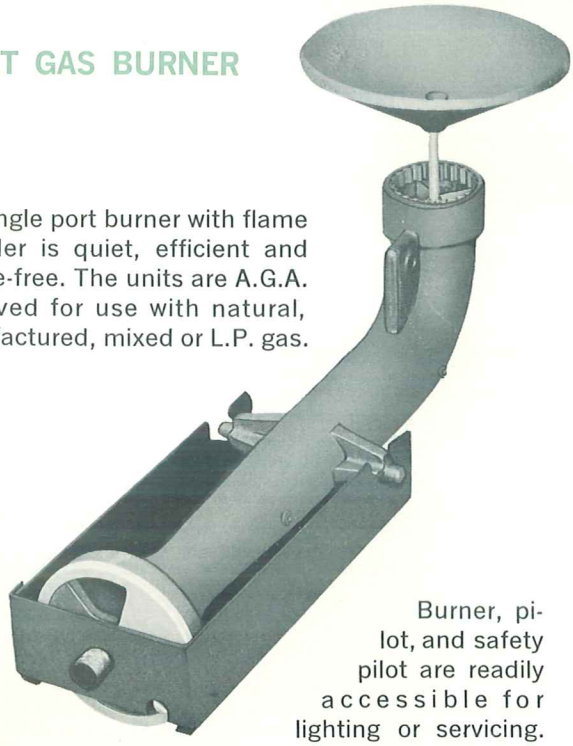
Filters, with ample area to last a full heating season on practically any installation, are installed inside the blower cabinet.

They can be removed for cleaning or replacement by removing the access doors located on either side of the flue pipe.

HEATING AND AIR CONDITIONING UNITS

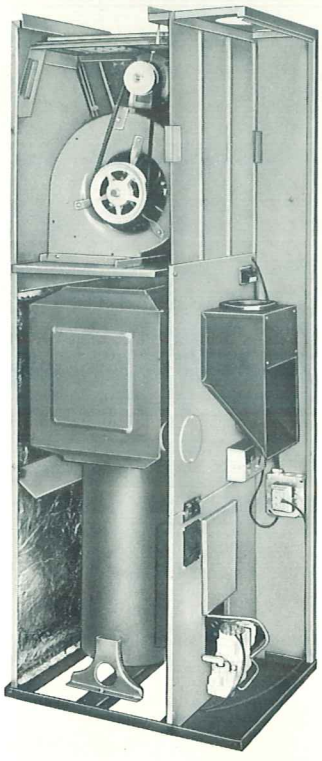
QUIET GAS BURNER

The single port burner with flame spreader is quiet, efficient and trouble-free. The units are A.G.A. approved for use with natural, manufactured, mixed or L.P. gas.



Burner, pilot, and safety pilot are readily accessible for lighting or servicing. They can be removed in one piece after loosening the pilot gas line, and the thermocouple lead.

COMPACT ARRANGEMENT OF COMPONENT PARTS

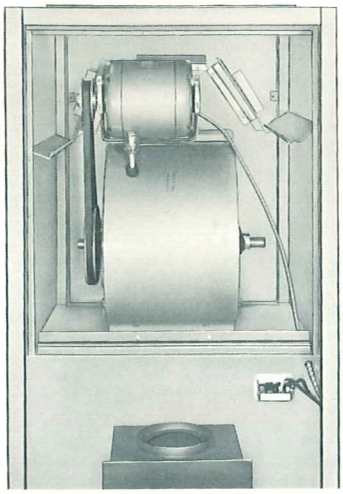


The smooth flowing lines in the round to square design of the heat exchanger with the tapered top and bottom of the radiator, allow free passage of air through the unit.

Burner, controls, blower, motor, and filters are all accessible for service through the front of the Counterflow Unit.

The foil faced fiberglass insulation assures quiet operation and permits installation in a closet with no clearance at sides or rear of unit.

LARGE QUIET BLOWER



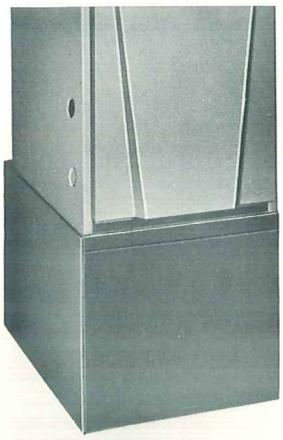
The large capacity quiet blower provides adequate air delivery for comfortable, carefree heating. Blowers have capacity so that, with larger motors, they will provide air enough for the addition of cooling. Blower can be removed for cleaning or servicing by removing two screws and sliding blower assembly out.

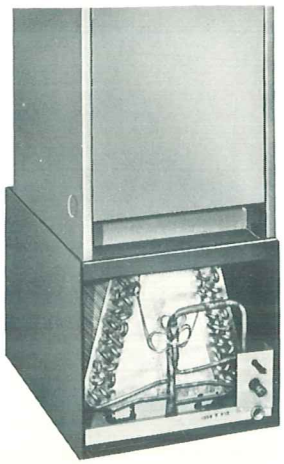
BASE FOR COMBUSTIBLE FLOOR

When Counterflow Units are to be installed on a combustible floor, a special base is available to make a safe installation. Base is of heavy steel with asbestos gasket under unit to provide an air seal and protect the floor.

CUSTOM BUILT FOR EFFICIENT, TROUBLE FREE OPERATION

HEATING AND COOLING COMBINATION

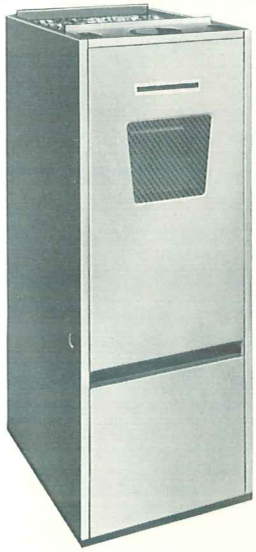




Base for cooling and cooling coil can be installed with the units to make a complete winter and summer combination heating and cooling unit. Standard blowers have sufficient capacity for operating at the higher static pressures encountered when cooling coil is added. Only the motor and drive need be changed.

It is practical to install the heating unit and the base for cooling now, and add cooling later.

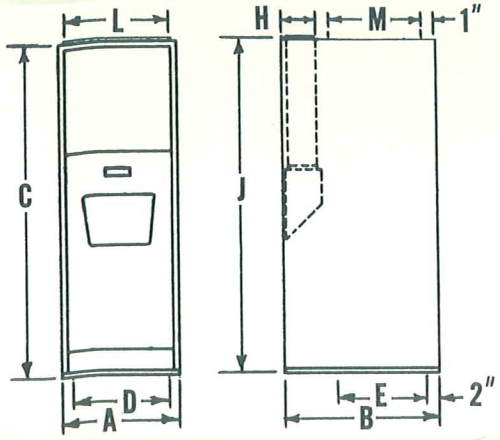
HI-BOY, HORIZONTAL OIL FIRED UNITS AND BASEMENT UNITS

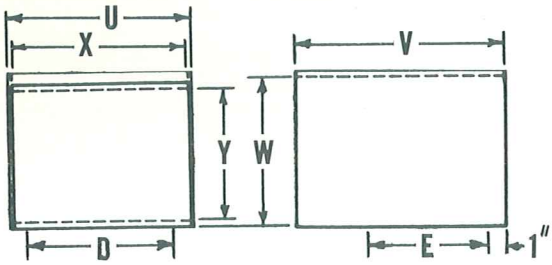


The units are also available in Hi-Boy, Basement and Horizontal Models to suit any installation.

It is possible to convert your unit to burn oil without disturbing unit or duct work. An oil burner, firebox, and primary control can be installed in place of the gas burner at a reasonable cost.

HEATING & AIR CONDITIONING UNITS





BASE FOR COOLING COILS

Units are approved by the American Gas Association for use with natural, mixed, manufactured or L.P. gas. They are approved for both regular and high static pressure installations. Quiet, safe, trouble-free operation is assured.

DIMENSIONS

UNIT NUMBER *	CABINET			PLENUM	OPENINGS	FLUE		FILTER SIZES	PIPE SIZE NAT. MIXED MFD. L.P.	SHIPPING WEIGHT		
	WIDTH A	DEPTH B	HEIGHT C	WARM AIR* D x E	RETURN AIR L x M	DIA. H	HEIGHT J			UNIT	BASE FOR COMBUSTIBLE FLOOR	BASE FOR COOLING COIL
WTS 60 D WTS 60	14"	23½"	66"	10 x 14	12 x 14	4"	66"	2-8 x 16	½"	160	8	35
WTS 80 D WTS 80	20"	24½"	66"	16 x 14	18 x 14	5"	66"	3-8 x 16	½"	205	9	55
WTS 100 D WTS 100	20"	27"	66"	16 x 16	18 x 18	5"	66"	2-10 x 20	½"	220	10	60
WTS 125	22"	29"	68"	18 x 18	20 x 20	6"	68"	2-14 x 20	½"	260	10	65

SPECIFICATIONS

UNIT NUMBER *	A. G. A. RATING-BTU/HR		BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	† STATIC PRESSURE	CLEARANCES		
	INPUT	BONNET CAPACITY						SIDES & REAR	FRONT	FLUE PIPE
WTS 60 D	60,000	48,000	9-6	Direct	1/12	500	0.12	1"**	6"	6"
WTS 60	60.000	48,000	9-6	3¼ x 6-38	1/8	500	0.12	1"**	6"	6"
WTS 80 D	80.000	64,000	9-7	Direct	1/12	660	0.12	0"	6"	6"
WTS 80	80,000	64,000	9-7	3¼ x 6-37	1/8	660	0.12	0"	6"	6"
WTS 100 D	100,000	80,000	9-9	Direct	1/8	825	0.15	0"	6"	6"
WTS 100	100,000	80,000	9-9	3¼ x 6-37	1/6	825	0.15	0"	6"	6"
WTS 125	125,000	100,000	10-8	3¼ x 6-39	1/4	1030	0.20	0"	6"	6"

**Zero Clearance Permitted with Type B Flue.

†A.G.A. Test Conditions. All Units will Deliver Above C.F.M. ¢at 0.2 in S.P.

BASE FOR COOLING COILS

FOR USE WITH UNIT * NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y	DISCHARGE OPENING D x E
WTS 60	20½"	24"	17"	19¾ x 15¾	18 x 18
WTS 80	20½"	25"	17"	19¾ x 15¾	18 x 18
WTS 100	20½"	27½"	17"	19¾ x 15¾	18 x 18
WTS 125	22½"	29½"	17"	21¾ x 15¾	20 x 18

Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

When base for combustible floor is used opening in floor must be 1" larger than warm air plenum on all four sides on 80D, 80, 100D, and 100 units and 1½" larger on all four sides on 125 units.

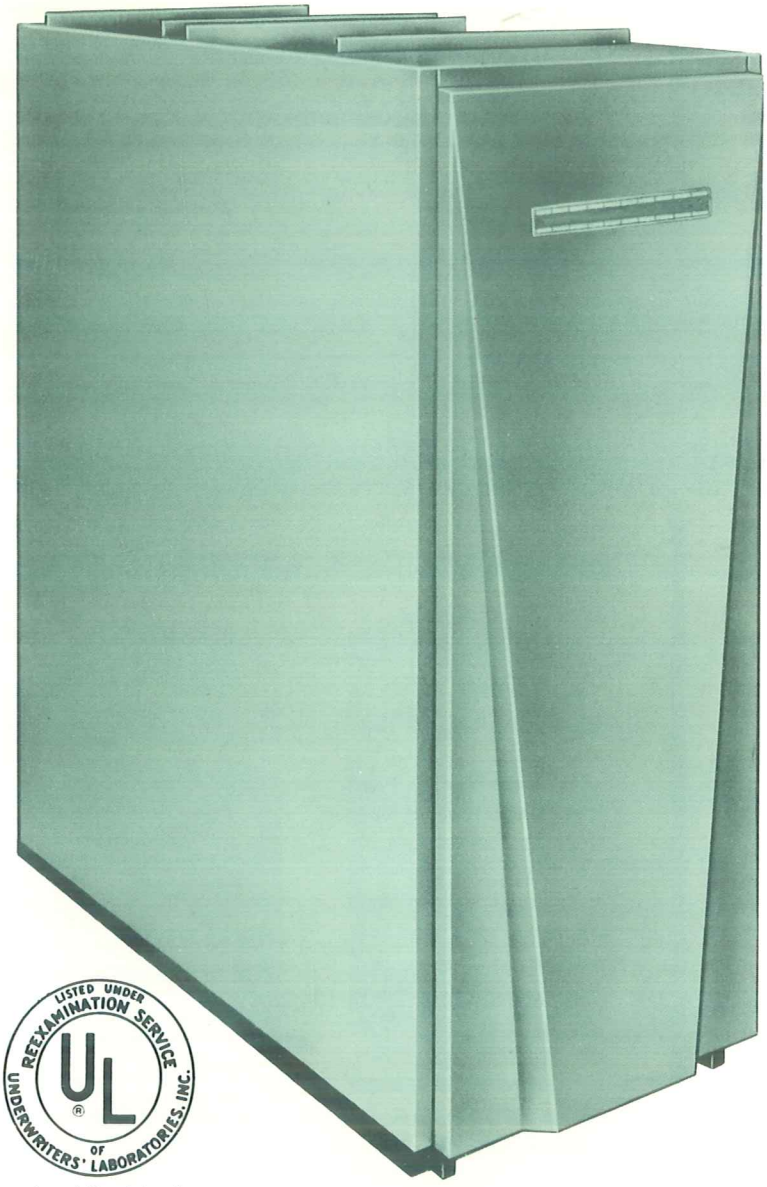
ALTERNATE MOTORS and DRIVES for cooling unit combinations

UNIT * NUMBER	TONS COOLING	BLOWER (Standard)	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
WTS 60	2	9-6	4 x 5	¼	700	0.5
WTS 80	2	9-7	3¼ x 5-36	¼	800	0.5
WTS 100	2	9-9	3¼ x 5-36	¼	850	0.5
WTS 100	3	9-9	4 x 5-36	⅓	1100	0.5
WTS 100	3½	9-9	4 x 5-36	½	1400	0.5
WTS 125	2	10-8	3¼ x 5-38	⅓	1100	0.5
WTS 125	3	10-8	3¼ x 5-38	⅓	1200	0.5
WTS 125	3½	10-8	4 x 6-40	½	1400	0.5

*Note: Dimensions and specifications for WTS 50 and 50D are the same as WTS 60 and 60D, except input is 50,000 B.T.U./hr.; bonnet capacity is 40,000 B.T.U./hr.

BTL OIL FIRED Basement Model

HEATING AND AIR CONDITIONING UNITS

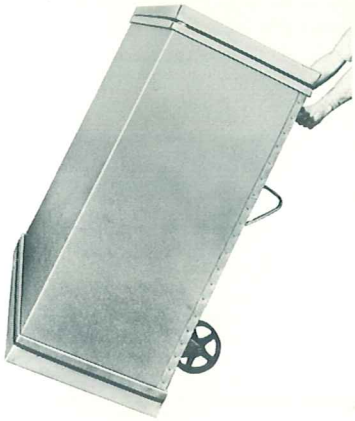


Tested and listed by the Underwriters' Laboratories

Custom Built For Efficient, Trouble-Free Operation ...

SAFELY PACKAGED COMPLETE IN ONE CARTON

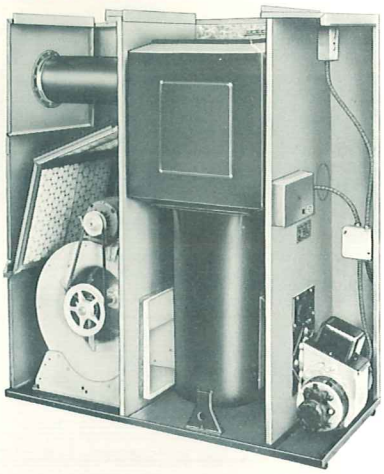
The units, through 175,000 B. T. U. input, are shipped in one carton with the burner and all of the controls completely assembled and completely wired at the factory.



The 245,000 B.T.U. input unit is shipped in two cartons. The warm air section has burner installed and all controls wired. The return air-section has blower and motor assembled with two wires to be attached to motor.

Well designed spacers hold the unit safely in the carton for easy handling and shipping. THIS INSURES ARRIVAL OF THE UNIT AT THE JOB IN PERFECT CONDITION.

COMPACT ARRANGEMENT OF COMPONENT PARTS



The heat exchanger and casing are designed so that no air baffles or shields are necessary.

The large capacity blower, mounted on rubber and with felt connection at outlet, is quiet in operation.

The large access door at the rear of the unit provides ample space to change filters, oil or service blower and motor.

HEATING AND AIR CONDITIONING UNITS

QUIET OIL BURNER

The fire box is installed at the factory and shipped in the unit. The rugged refractory construction with the corbelled top, assures efficient operation and long years of service.

The pressure atomizing oil burner is mounted in the vestibule and completely wired at the factory. The burner can be removed for service or cleaning by loosening the oil line and removing three nuts on the burner mounting plate.

FIBERGLASS INSULATION

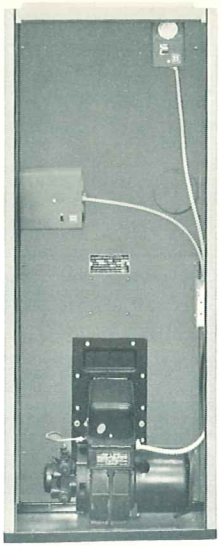
The foil faced fiberglass insulation assures quiet operation and a minimum heat loss through the casing. The insulation is held firmly in place by full length metal bars across the casing panels.

The solid steel base set up from the floor on full length channels, provides a rigid base which can be levelled on the basement floor and needs no grouting.

The tough baked enamel applied to the casings assures a bright, durable finish.

No detail has been overlooked to make the units economical to install, accessible to service, and comfortable to live with.

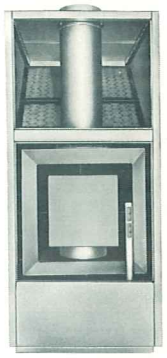
ALL CONTROLS ARE ENCLOSED

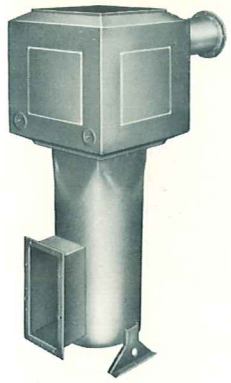


The oil burner, primary control, blower & limit switch and junction box are all mounted inside the full height vestibule. All are easily accessible for cleaning or service. The fire box is shipped in place within the heat exchanger.

All controls, except the thermostat, are completely assembled and completely wired at the factory. Only the thermostat and barometric draft control are to be mounted on the job.

WELL DESIGNED* HEAT EXCHANGER





The smooth flowing lines of the round to square design of the heat exchanger form the first step in the design.

The SQUARE radiator around the SQUARE body in the SQUARE casing permits uniform air passages through the unit between the heating surfaces. This brings the air into close contact with all of the heating surface. The tapered top and bottom surfaces of the radiator present less resistance to the smooth flow of air through the unit. There are no "circle in a square" corners in the design.

*PATENTS PENDING

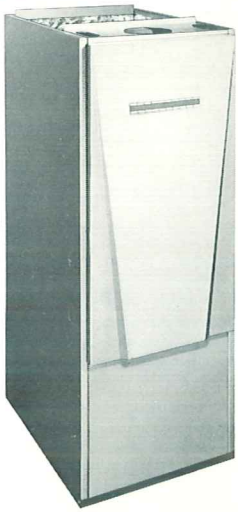
CUSTOM BUILT FOR EFFICIENT, TROUBLE FREE OPERATION

HEATING AND COOLING COMBINATION

Matching plenum and cooling coil can be installed with the units to make a complete winter and summer combination heating and cooling unit. Standard blowers have sufficient capacity for operating at the higher static pressures encountered when cooling coil is added. Only the motor and drive need be changed.

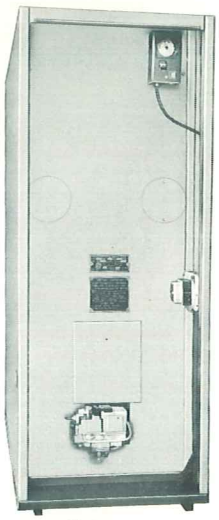
It is practical to install the heating unit and the matching plenum now and add cooling later.

HORIZONTAL HI-BOY AND COUNTERFLOW UNITS



The units are available in Horizontal, Hi-Boy and Counterflow Models to suit any installation.

GAS FIRED UNITS

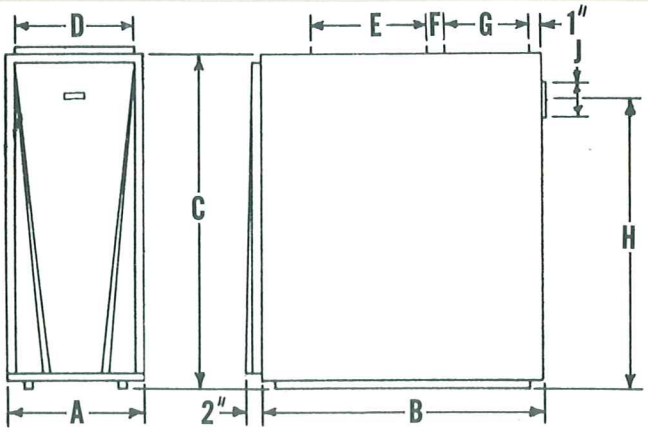


It is possible to convert your unit to burn gas without disturbing unit or duct work.

A gas burner and controls can be installed in place of the oil burner and fire box at a reasonable cost.

HEATING & AIR CONDITIONING UNITS

Units are listed by Underwriters' Laboratories.
The burners are designed to burn #2 furnace oil.



DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS		DIM F	FLUE		FILTERS	SHIPPING WEIGHT
	A WIDTH	B DEPTH	C HEIGHT	D x E WARM AIR	D x G RETURN		H HEIGHT	J DIA.		
BTL 100 D	20″	40″	50″	18 x 14	18 x 14	2½″	41½	6″	16 x 25	280
BTL 100	20″	40″	50″	18 x 14	18 x 14	2½″	41½	6″	1-10 x 20 1-15 x 20	280
BTL 125	20″	43″	52″	18 x 18	18 x 14	1½″	43½	6″	1-10 x 20 1-20 x 20	325
BTL 160	22″	48″	54″	20 x 20	20 x 16	2½″	45	7″	1-15 x 20 1-20 x 20	380
BTL 200*	26″	56″	56″	24 x 22	24 x 22	2″	47	7″	2-20 x 25	460

*Assembled & Shipped in two cartons.

SPECIFICATIONS

UNIT NUMBER	RATINGS			BLOWER	DRIVE	MOTOR	C. F. M. @ 85° RISE	STATIC PRESSURE
	FIRING RATE		BONNET CAPACITY					
	GAL. PER HR.	B.T.U.						
BTL 100 D	.72	100,000	80,000	9-9	DIRECT	⅙	825	0.15 IN.
BTL 100	.85	119.000	95,000	9-9	3¼ x 5-34	¼	980	0.2 IN.
BTL 125	1.0	140,000	112,000	10-8	3¼ x 6-37	⅓	1150	0.2 IN.
BTL 160	1.25	175,000	140,000	12-9	3¼ x 7-41	⅓	1450	0.2 IN.
BTL 200	1.75	245,000	196,000	12-12	3¼ x 6-41	½	2000	0.25 IN.

MATCHING PLENUMS (FOR COOLING COILS)

PLENUM NUMBER	FOR USE WITH UNITS NUMBER	WIDTH	DEPTH	HEIGHT	DOOR OPENINGS		PLENUM SIZE	
					FRONT	REAR	WARM AIR	RETURN
BT 100	BTL 100 D BTL 100	20″	40″	32″	19¾ x 15¾	19¾ x 15¾	20 x 25	20 x 15
BT 125	BTL 125	20″	43″	30″	19¾ x 15¾	19¾ x 15¾	20 x 26	20 x 17
BT 160	BTL 160	22″	48″	28″	21¾ x 20¾	21¾ x 15¾	22 x 28½	22 x 19½
BT 200 W	BTL 200	26″	32″	26″	23¾ x 20¾″		26 x 32	
BT 200 R	BTL 200	26″	24″	26″		23¾ x 15¾		26 x 24

ALTERNATE MOTORS and DRIVES for cooling unit combinations

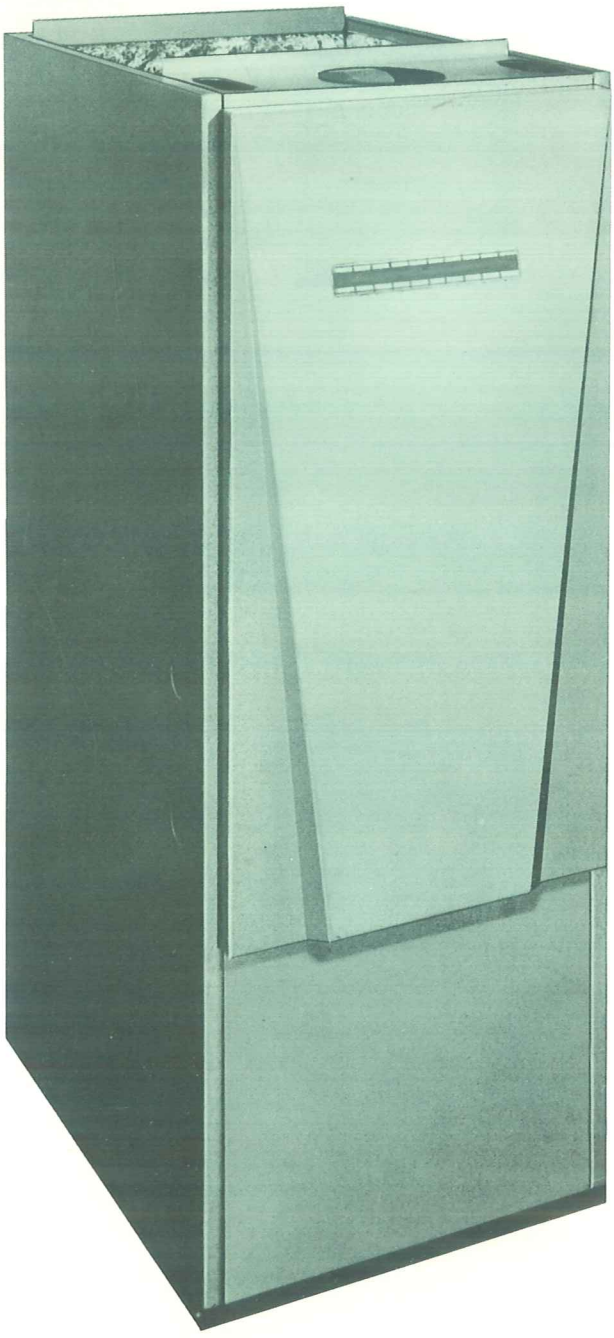
UNIT NUMBER	TONS COOLING	BLOWER (Standard)	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
BTL 100	2	9-9	3¼ x 5-35	¼	980	0.5 IN.
BTL 100	3	9-9	4 x 5-34	⅓	1100	0.5 IN.
BTL 125	2	10-8	3¼ x 5-35	⅓	1150	0.5 IN.
BTL 125	3	10-8	3¼ x 5-36	⅓	1200	0.5 IN.
BTL 160	3	12-9	3¼ x 7-41	⅓	1450	0.5 IN.
BTL 160	4	12-9	3¼ x 6-40	½	1600	0.5 IN.
BTL 160	5	12-9	3¼ x 5-39	¾	1850	0.5 IN.
BTL 200	4	12-12	3¼ x 7-42	½	1650	0.5 IN.
BTL 200	5	12-12	3¼ x 5-39	¾	2000	0.5 IN.

Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

HTL OIL FIRED Hi-Boy Model

HEATING AND AIR CONDITIONING UNITS



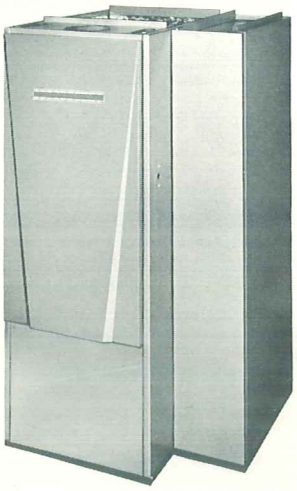
Custom Built For Efficient, Trouble-Free Operation ...

LISTED UNDER REEXAMINATION SERVICE UL UNDERWRITERS' LABORATORIES, INC. OF

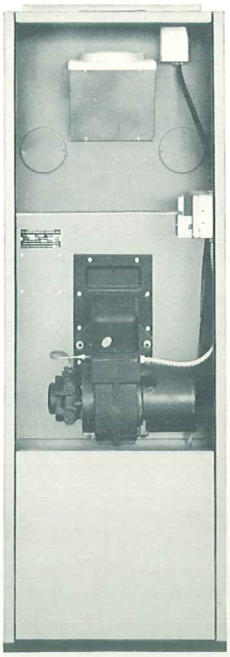
Tested and listed by the Underwriters' Laboratories

SMARTLY STYLED BAKED ENAMEL FINISH

The smart styled straight line design of the unit with a neutral green finish makes an attractive appearance in any installation. The side return air cabinet shown below can be added for installation of the Hi-Boy in the basement. Both the unit and the side return air cabinet have very hard durable baked enamel finish. Used with the narrow side air return cabinet, which can be attached to *either* side, it makes a very flexible combination that will fit any installation requirement.



ALL CONTROLS ARE ENCLOSED



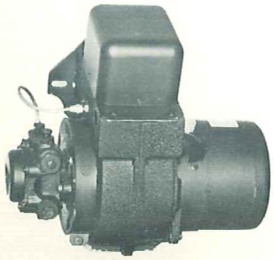
The oil burner, primary control, blower & limit switch and junction box are all mounted inside the full height vestibule. All are easily accessible for cleaning or service. The fire box is shipped in place within the heat exchanger.

All controls, except the thermostat, are completely assembled and completely wired at the factory. Only the thermostat and barometric draft control are to be mounted on the job.

HEATING AND AIR CONDITIONING UNITS

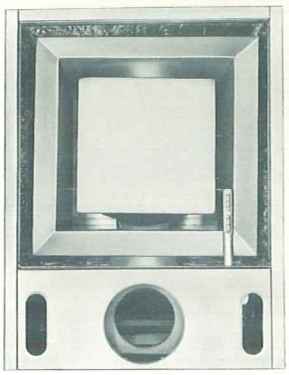
QUIET OIL BURNER

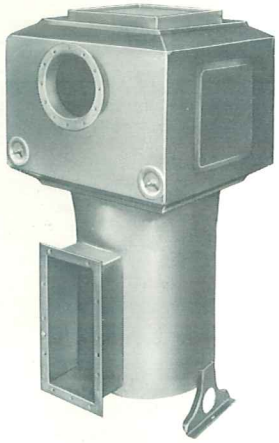
The fire box is installed at the factory and shipped in the unit. The rugged refractory construction with the corbelled top, assures efficient operation and long years of service.



The pressure atomizing oil burner is mounted in the vestibule and completely wired at the factory. The burner can be removed for service or cleaning by loosening the oil line and removing three nuts on the burner mounting plate.

WELL DESIGNED* HEAT EXCHANGER



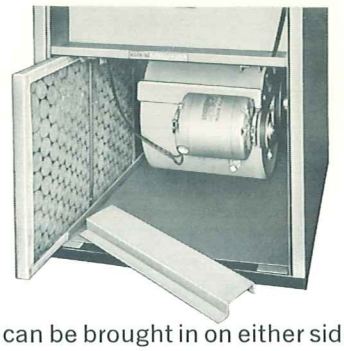


The smooth flowing lines of the round to square design of the heat exchanger form the first step in the design.

The SQUARE radiator around the SQUARE body in the SQUARE casing permits uniform air passages through the unit between the heating surfaces. This brings the air into close contact with all of the heating surface. The tapered top and bottom surfaces of the radiator present less resistance to the smooth flow of air through the unit. There are no "circle in a square" corners in the design.

*PATENTS PENDING

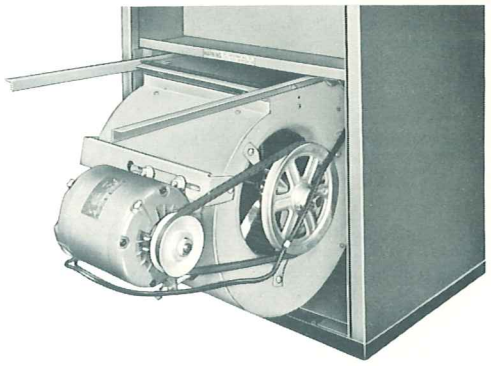
FILTER ARRANGEMENT FITS ALL JOBS



Return air can be brought in on either side or through the bottom of the unit. Filter and filter channels are shipped installed on one side of the unit and the bottom panel is in place. Even when the unit is set on an uneven floor, no grouting is necessary.

If return air is to be brought in on the other side of the furnace, filter channels can be installed on the opposite side. If return air is to be brought in through bottom of unit, panel covering bottom opening can be removed and filter channels installed in bottom opening.

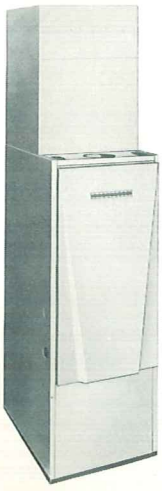
LARGE QUIET BLOWERS

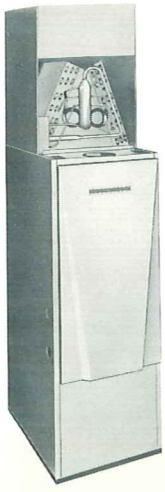


The large capacity quiet blower provides adequate air delivery for comfortable, carefree heating. Blowers have capacity so that, with larger motors, they will provide air enough for the addition of cooling. Blower can be removed for cleaning or servicing by removing one screw and sliding blower assembly out on channels.

CUSTOM BUILT FOR EFFICIENT, TROUBLE FREE OPERATION

HEATING AND COOLING COMBINATION

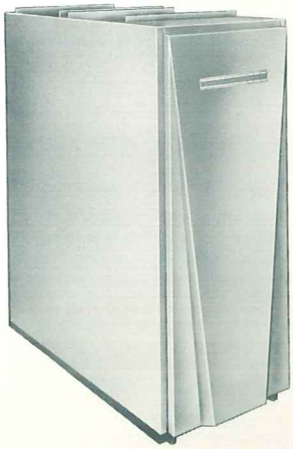




Matching plenum and cooling coil can be installed with the units to make a complete winter and summer combination heating and cooling unit. Standard blowers have sufficient capacity for operating at the higher static pressures encountered when cooling coil is added. Only the motor and drive need be changed.

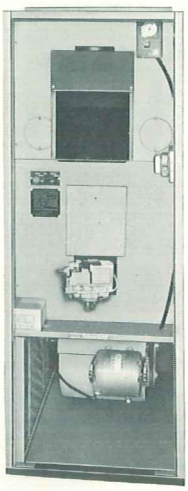
It is practical to install the heating unit and the matching plenum now and add cooling later.

BASEMENT HORIZONTAL AND COUNTERFLOW UNITS



The units are also available in Basement Counterflow and Horizontal units to suit any installation.

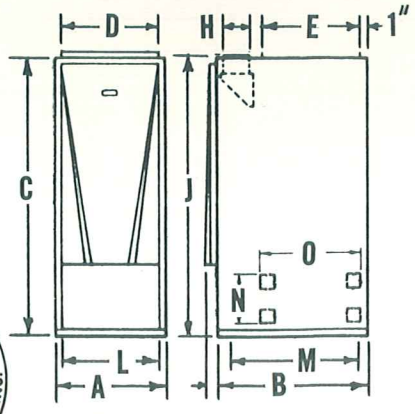
GAS FIRED UNITS

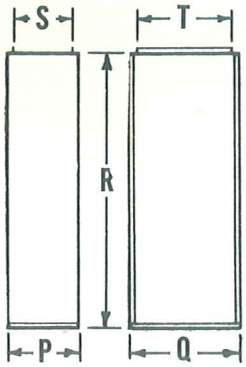


It is possible to convert your unit to burn gas without disturbing unit or duct work.

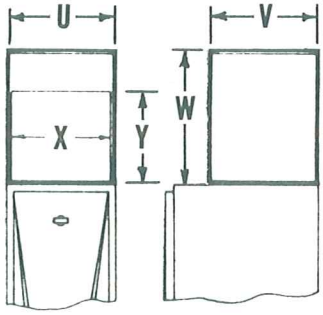
A gas burner and controls can be installed in place of the oil burner and fire box at a reasonable cost.

HEATING & AIR CONDITIONING UNITS





SIDE RETURN AIR CABINET



MATCHING PLENUM

LISTED UNDER REEXAMINATION SERVICE UL UNDERWRITERS' LABORATORIES, INC. OF UNDERWRITERS' LABORATORIES

Units are listed by Underwriters' Laboratories.
The burners are designed to burn #2 furnace oil.

DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS			FLUE		FILTER SIZES	SHIPPING WEIGHT		
	WIDTH A	DEPTH B	HEIGHT C	WARM AIR D x E	RETURN BOTTOM L x M	RETURN SIDE N x O	DIA. H	HEIGHT J		UNIT	SIDE AIR CABINET	MATCHING PLENUM
HTL 80 D HTL 80	20″	27″	58″	18 x 18	16 x 24	12 x 18	6″	58″	16 x 25	255	25	30
HTL 100 D HTL 100	22″	29″	58″	20 x 20	16 x 24	12 x 20	6″	58″	1-16 x 20 1-16 x 8	270	30	30
HTL 125	22″	29″	68″	20 x 20	16 x 24	16 x 20	6″	68″	2-14 x 20	310	35	30

SPECIFICATIONS

UNIT NUMBER	RATINGS			BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE	CLEARANCES				
	FIRING RATE GAL./hr	FIRING RATE BTU/hr	BONNET CAPACITY						SIDES	REAR	FRONT	FLUE PIPE	PLENUM TOP
HTL 80 D	.65	90,000	72,000	9-7	Direct	1/8	750	0.15	2″	1″	9″	9″	4″
HTL 80	.72	100,000	80,000	9-7	3¼ x 6-36	1/8	830	0.15	2″	1″	9″	9″	4″
HTL 100 D	.75	105,000	84,000	9-9	Direct	1/6	865	0.20	1″	1″	7″	9″	3″
HTL 100	.85	119,000	95,000	9-9	3¼ x 6-36	1/6	980	0.20	1″	1″	7″	9″	3″
HTL 125	1.0	140,000	112,000	10-8	3¼ x 6-38	1/4	1150	0.20	1″	1″	7″	9″	3″

SIDE RETURN AIR CABINET

FOR USE WITH UNIT NUMBER	WIDTH P	DEPTH Q	HEIGHT R	PLENUM OPENING S x T
HTL 80 D HTL 80	10″	20″	58″	8 x 18
HTL 100 D HTL 100	10″	22″	58″	8 x 20
HTL 125	10″	22″	68″	8 x 20

MATCHING PLENUM (for cooling coils)

FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y
HTL 80 D HTL 80	20″	22″	24″	19¾ x 15¾
HTL 100 D HTL 100	22″	22″	24″	21¾ x 15¾
HTL 125	22″	22″	24″	21¾ x 15¾

ALTERNATE MOTORS and DRIVES for cooling unit combinations

UNIT NUMBER	TONS COOLING	BLOWER (Standard)	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
HTL 80	2	9-7	3¼ x 5-34	¼	800	0.5
HTL 100	2	9-9	3¼ x 6-36	¼	850	0.5
HTL 100	3	9-9	3¼ x 5-34	⅓	1200	0.5
HTL 100	3½	9-9	4 x 4-34	¾	1400	0.5
HTL 125	3	10-8	3¼ x 6-38	⅓	1200	0.5
HTL 125	3½	10-8	4 x 6-38	½	1400	0.5
HTL 125	4	10-8	4 x 5-37	¾	1600	0.5

Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

WTL OIL FIRED Counterflow Model

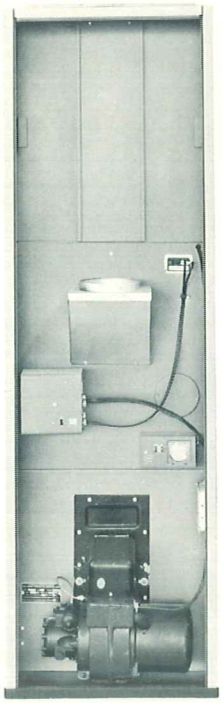
HEATING AND AIR CONDITIONING UNITS

Custom Built For Efficient, Trouble-Free Operation ...

LISTED UNDER REEXAMINATION SERVICE UL OF UNDERWRITERS' LABORATORIES, INC.

Tested and listed by the Underwriters' Laboratories

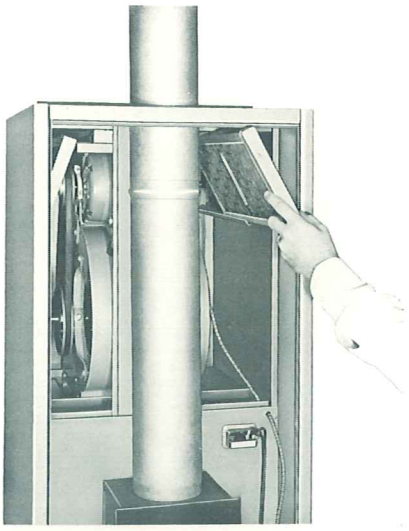
ENCLOSED CONTROLS ACCESSIBLE FOR SERVICE



The oil burner, primary control, blower & limit switch and junction box are all mounted inside the full height vestibule. All are easily accessible for cleaning or service. The fire box is shipped in place within the heat exchanger.

All controls, except the thermostat, are completely assembled and completely wired at the factory. Only the thermostat and barometric draft control are to be mounted on the job.

FILTERS EASILY REPLACED



Filters are installed inside the blower cabinet.

They can be removed for cleaning or replacement by removing the access doors located on either side of the flue pipe.

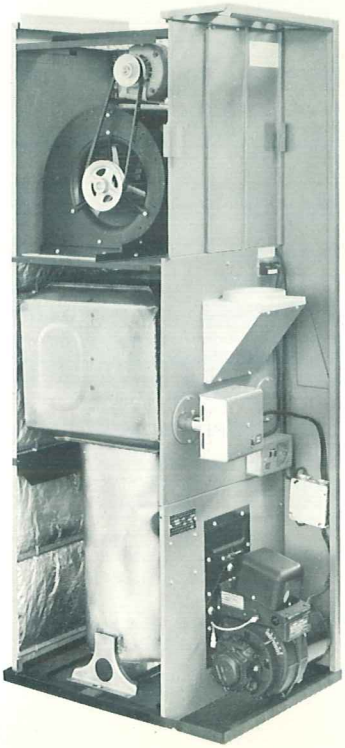
HEATING AND AIR CONDITIONING UNITS

QUIET OIL BURNER

The fire box is installed at the factory and shipped in the unit. The rugged refractory construction with the corbelled top, assures efficient operation and long years of service.

The pressure atomizing oil burner is mounted in the vestibule and completely wired at the factory. The burner can be removed for service or cleaning by loosening the oil line and removing three nuts on the burner mounting plate.

COMPACT ARRANGEMENT OF COMPONENT PARTS

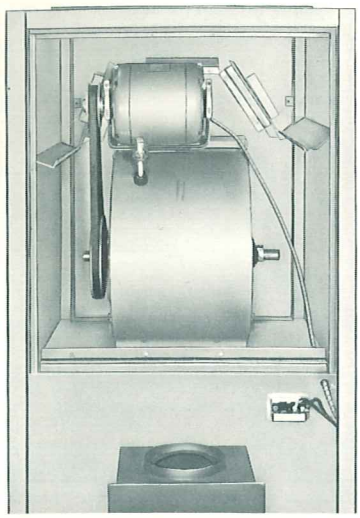


The smooth flowing lines in the round to square design* of the heat exchanger with the tapered top and bottom of the radiator, allow free passage of air through the unit.

Burner, controls, blower, motor, and filters are all accessible for service through the front of the Counterflow Unit.

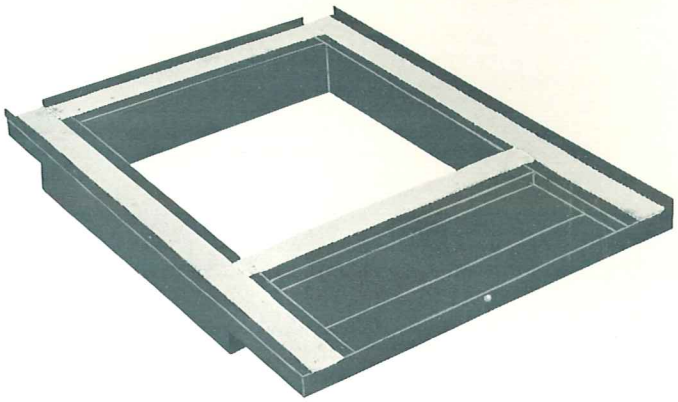
The foil faced fiberglass insulation assures quiet operation and permits installation in a closet with minimum clearance at sides or rear of unit.

LARGE QUIET BLOWER



The large capacity quiet blower provides adequate air delivery for comfortable, carefree heating. Blowers have capacity so that, with larger motors, they will provide air enough for the addition of cooling. Blower can be removed for cleaning or servicing by removing two screws and sliding blower assembly out.

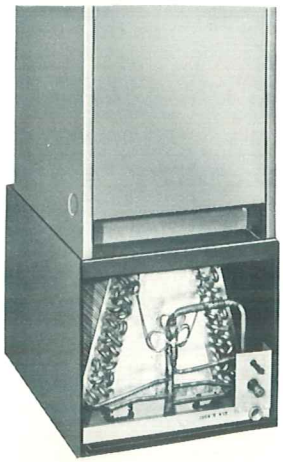
BASE FOR COMBUSTIBLE FLOOR



When Counterflow Units are to be installed on a combustible floor, a special base is available to make a safe installation. Base is of heavy steel with asbestos gasket under unit to provide an air seal and protect the floor.

CUSTOM BUILT FOR EFFICIENT, TROUBLE FREE OPERATION

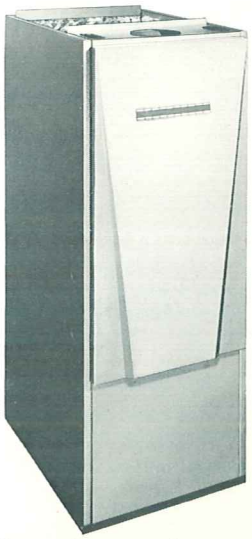
HEATING AND COOLING COMBINATION



Base for cooling and cooling coil can be installed with the units to make a complete winter and summer combination heating and cooling unit. Standard blowers have sufficient capacity for operating at the higher static pressures encountered when cooling coil is added. Only the motor and drive need be changed.

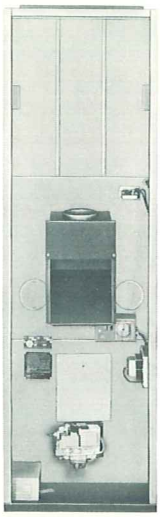
It is practical to install the heating unit and the base for cooling later.

HORIZONTAL HI-BOY AND BASEMENT UNITS



The units are also available in Hi-Boy, Basement and Horizontal Models to suit any installation.

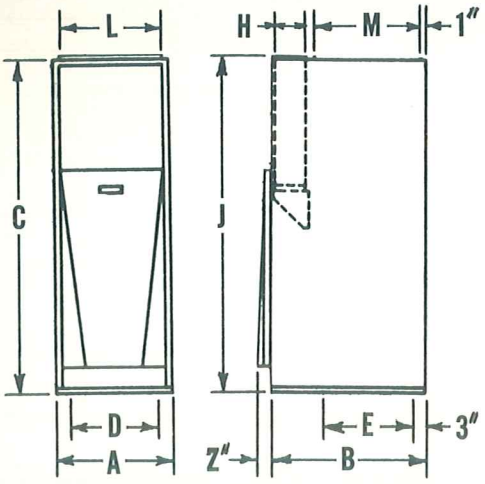
GAS FIRED UNITS

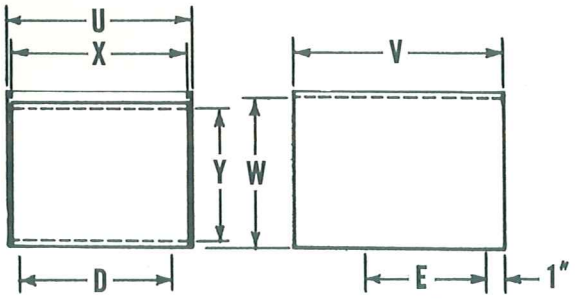


It is possible to convert your unit to burn gas without disturbing unit or duct work.

A gas burner and controls can be installed in place of the oil burner and fire box at a reasonable cost.

HEATING & AIR CONDITIONING UNITS





BASE FOR COOLING COILS

Units are listed by Underwriters' Laboratories.

DIMENSIONS

UNIT NUMBER	CABINET			PLENUM OPENINGS		FLUE		FILTER SIZES	SHIPPING WEIGHT		
	WIDTH A	DEPTH B	HEIGHT C	WARM AIR * D x E	RETURN AIR L x M	DIA. H	HEIGHT J		UNIT	BASE FOR COMBUS-TIBLE FLOOR	BASE FOR COOLING COIL
WTL 80 D WTL 80	20"	24½"	66"	14 x 12	18 x 14	6"	66"	3-8 x 16	255	10	35
WTL 100 D WTL 100	20"	27"	66"	14 x 14	18 x 18	6"	66"	1-10 x 20 1-14 x 20	270	12	40
WTL 125	22"	29"	68"	16 x 16	20 x 20	6"	68"	2-14 x 20	320	12	45

SPECIFICATIONS

UNIT NUMBER	RATING			BLOWER	DRIVE	MOTOR	C. F. M. @85° RISE	STATIC PRESSURE	CLEARANCES			
	FIRING RATE BTU/hr	FIRING RATE GAL./hr	BONNET CAPACITY						SIDES	REAR	FRONT	FLUE PIPE
WTL 80 D	90,000	.65	72,000	9-7	Direct	1/6	750	0.15	2"	1"	7"	9"
WTL 80	100,000	.72	80,000	9-7	3¼ x 5-36	1/6	810	0.15	2"	1"	7"	9"
WTL 100 D	112,000	.8	90,000	9-9	Direct	1/6	925	0.20	2"	1"	7"	9"
WTL 100	119,000	.85	95,000	9-9	3¼ x 5-36	1/4	980	0.20	2"	1"	7"	9"
WTL 125	140,000	1.0	112,000	10-8	3¼ x 5-38	1/3	1150	0.20	1"	1"	7"	9"

BASE FOR COOLING COILS

FOR USE WITH UNIT NUMBER	WIDTH U	DEPTH V	HEIGHT W	DOOR OPENING X x Y	DISCHARGE OPENING D x E
WTL 80 D WTL 80	20½"	25"	17"	19¾ x 15¾	18 x 18
WTL 100 D WTL 100	20½"	27½"	17"	19¾ x 15¾	18 x 18
WTL 125	22½"	29½"	17"	21¾ x 15¾	18 x 20

Where units are to be installed with cooling coils, they can be ordered or equipped with larger motors to operate against the higher static pressures encountered.

The capacity table at the right shows the motor sizes and drives for use with units equipped with cooling coils.

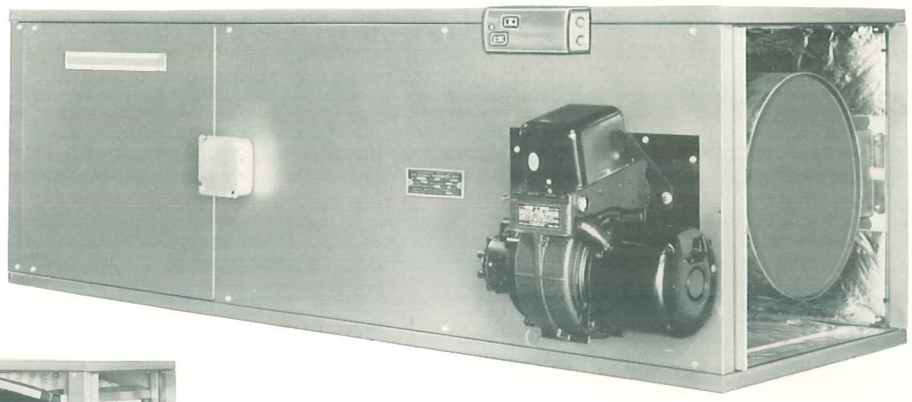
*When base for combustible floor is used opening in floor must be 2" larger than warm air plenum on all four sides on all units.

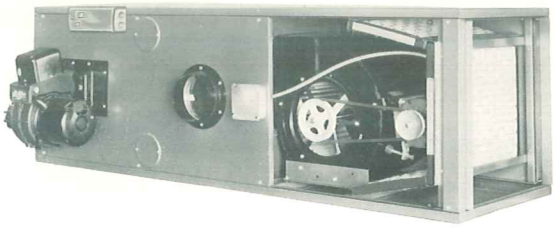
ALTERNATE MOTORS and DRIVES for cooling unit combinations

UNIT NUMBER	TONS COOLING	BLOWER (Standard)	DRIVE	MOTOR	C. F. M.	STATIC PRESSURE
WTL 80	2	9-7	3¼ x 5-36	¼	810	0.5
WTL 100	2	9-9	3¼ x 5-36	¼	980	0.5
WTL 100	3	9-9	4 x 5-36	⅓	1100	0.5
WTL 125	2	10-8	3¼ x 5-38	⅓	1150	0.5
WTL 125	3	10-8	3¼ x 5-38	⅓	1200	0.5

NTL OIL FIRED HORIZONTAL FURNACE

HEATING AND AIR CONDITIONING UNITS

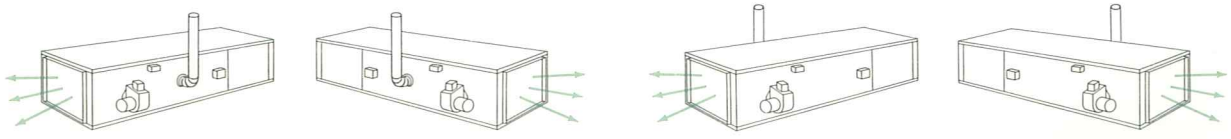


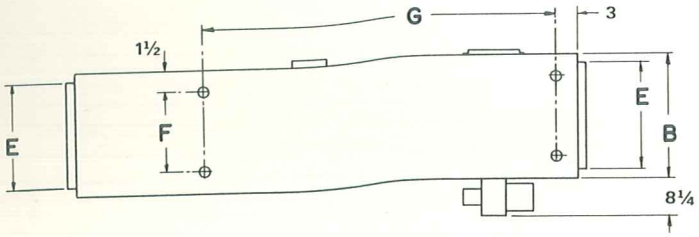


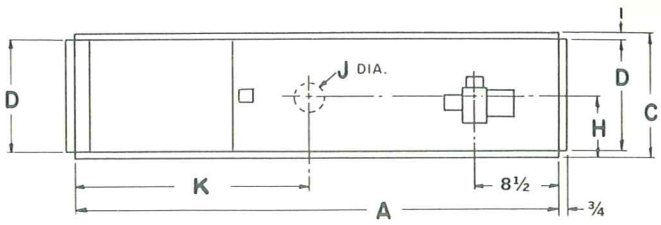
Designed for Attic, Crawl Space, Basement or Commercial Installation

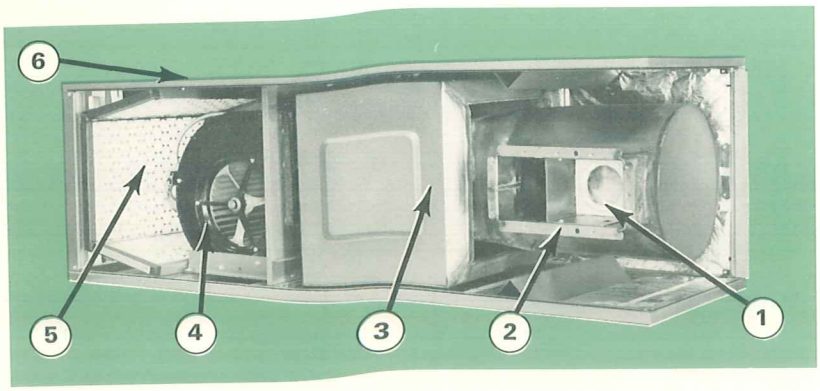
Compact design, quiet operation and efficient performance make this horizontal oil furnace an outstanding choice for any heating installation. Air flow may be directed from left to right with the flue outlet in the front or rear. The air flow and flue outlet are reversed by simply inverting the blower assembly. The "factory tight" heat exchanger seal remains intact.

Oil burner and controls are packed separately in one carton and are easily installed. The large blowers have ample capacity for air conditioning applications. The design of the oil burner and the "square to round" heat exchanger are two of this advanced unit's features. Other features that mean dependability and comfort are the ceramic firebox and the fibreglass insulated casing.









1 Refractory combustion chamber with Corbell Top.

2 Burner opening front and rear.

3 Exclusive square to round durable (16) gage heat exchanger for smooth air flow and maximum heat transfer.

4 Large capacity blower provides air deliveries needed for cooling.

5 Slide-out filters may be serviced from either side.

6 Twenty-one (21) gage baked enamel casing with fully insulated heating compartment. Knock-outs are provided for simplified suspension.

7 Quiet, efficient gun-type burner furnished with all NTL units. (Not pictured here).

ALTERNATE MOTORS and DRIVES for Cooling Unit Combinations

UNIT NUMBER	TONS COOLING	BLOWER	DRIVE	MOTOR	C.F.M.	STATIC PRESSURE
NTL-72	2	9-9	3¼ x 6-38	¼	800	0.5
NTL-72	3	9-9	4 x 6-39	⅓	1150	0.5
NTL-72	3.5	9-9	4 x 5-39	½	1400	0.5
NTL-72	4	9-9	4 x 5-39	¾	1600	0.5
NTL-95	3	9-9	4 x 6-39	⅓	1150	0.5
NTL-95	3.5	9-9	4 x 5-39	½	1400	0.5
NTL-95	4	9-9	4 x 5-39	¾	1600	0.5
NTL-112	3.5	10-10	3¼ x 5-39	½	1400	0.5
NTL-112	4	10 10	4 x 5-40	¾	1600	0.5
NTL-140	3.5	10-10	3¼ x 5-39	½	1400	0.5
NTL-140	4	10 10	4 x 5-40	¾	1600	0.5

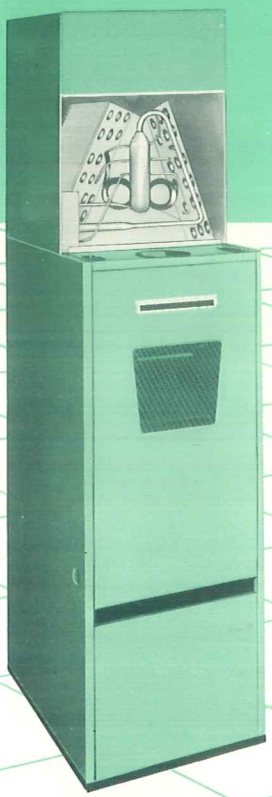
DIMENSIONS

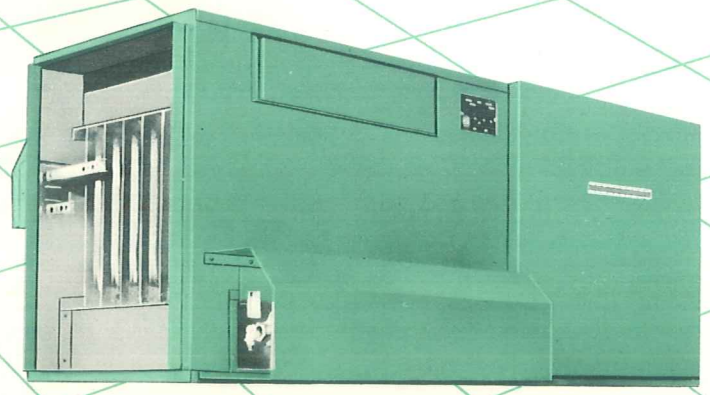
UNIT NUMBER	LENGTH A	WIDTH B	HEIGHT C	PLENUM OPENING D	PLENUM OPENING E	HANGER SPACING F	HANGER SPACING G	FLUE HT H	FLUE DIA J	SHIPPING WEIGHT UNIT	SHIPPING WEIGHT BURNER
NTL-72D NTL-72	68	20½	20	18	18	17½	45	10	6	270	55
NTL-84D	68	20½	20	18	18	17½	45	10	6	270	55
NTL-95	68	20½	20	18	18	17½	45	10	6	270	55
NTL-112	68	20½	20	18	18	17½	45	10	6	270	55
NTL-140	68	22½	22	20	20	19½	45	11	6	285	55

SPECIFICATIONS

UNIT NUMBER	FIRING RATE GAL/HR	FIRING RATE BTU/HR	BONNET CAPACITY	BLOWER	DRIVE	MOTOR	CFM @85° RISE	STATIC PRESSURE	FILTER SIZES
NTL-72D	.65	91,000	72,800	9-9	DIRECT	⅛	750	0.15	(3) 10x20x1
NTL-72	.65	91,000	72,800	9-9	3¼ x 6-38	⅛	750	0.15	(3) 10x20x1
NTL-84D	.75	105,000	84,000	9-9	DIRECT	⅙	865	0.20	(3) 10x20x1
NTL-95	.85	119,000	95,200	9-9	3¼ x 6-38	¼	980	0.20	(3) 10x20x1
NTL-112	1.0	140,000	112,000	10-10	3¼ x 6-40	¼	1150	0.20	(3) 10x20x1
NTL-140	1.25	175,000	140,000	10-10	3¼ x 5-38	⅓	1450	0.20	(2) 10x20x0 (1) 15x20x1

HEATING AND COOLING UNITS



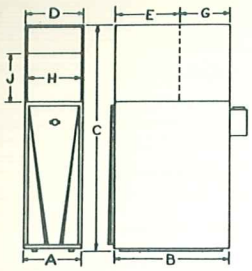


THIS UNIT HAS BEEN CERTIFIED AS COMPLYING WITH ARI STANDARD 210

. . . designed, engineered, and built for quiet, comfortable, carefree, heating and cooling

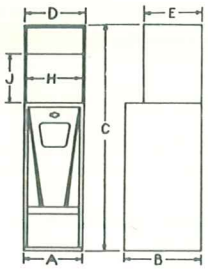
DIMENSIONS AND SPECIFICATIONS
COMBINATION HEATING AND COOLING UNITS

BASEMENT MODELS



COMPLETE UNIT NUMBER	CONDENSING UNIT NO.	COIL NUMBER	BTU/HR. INPUT GAS	GAL. PER HR. OIL	BTU COOLING	CABINET WIDTH A	CABINET DEPTH B	CABINET HEIGHT C	PLENUM SIZES DISCHARGE D x E	RETURN D x G	BLOWER	DRIVE	MOTOR	CFM AT .2 IN. EXTERNAL STATIC PRESSURE	SHIPPING WEIGHT GAS	SHIPPING WEIGHT OIL
BTS 100F2 BTL 100F2	C2R1	Q3AT or Q3AV	100,000	.85	23,000	20	40	82	20x25	20x15	9-9	3¼x5-35	¼	840	565	605
BTS 125F2 BTL 125F2			125,000	1.0		20	43	82	20x26	20x17	10-8	3¼x6-37	¼	1050	605	655
BTS 100F3 BTL 100F3	C3R1	Q3AT or Q3AV	100,000	.85	33,000	20	40	82	20x25	20x15	9-9	4x5-34	⅓	1100	575	615
BTS 125F3 BTL 125F3			125,000	1.0		20	43	82	20x26	20x17	10-8	3¼x5-35	⅓	1200	615	665
BTS 160F3 BTL 160F3			160,000	1.25		22	48	82	22x28½	22x19½	12-9	3¼x6-40	⅓	1450	675	720
BTS 160F5 BTL 160F5	C5R1	Q5AV	160,000	1.25	57,000	22	48	82	22x28½	22x19½	12-9	3¼x5-39	¾	1850	970	1015
BTS 200F5 BTL 200F5	C5R1	Q5AV	200,000	1.75	57,000	26	56	82	26x32	26x24	12-12	3¼x5-39	¾	2000	1070	1105

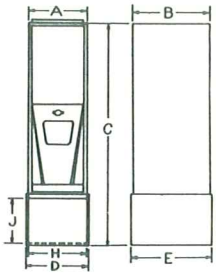
HI-BOY MODELS



COMPLETE UNIT NUMBER	CONDENSING UNIT NO.	COIL NUMBER	BTU/HR. INPUT GAS	GAL. PER HR. OIL	BTU COOLING	CABINET WIDTH A	CABINET DEPTH B	CABINET HEIGHT C	PLENUM SIZES DISCHARGE	BLOWER	DRIVE	MOTOR	CFM AT .2 IN. EXTERNAL STATIC PRESSURE	SHIPPING WEIGHT GAS	SHIPPING WEIGHT OIL
HTS 60F2	C2R1	Q3AT or Q3AV	60,000		23,000	14	23½	82	17x22	9-6	4x5-35	¼	700	450	
HTS 80F2 HTL 80F2			80,000	.72		20	27	82	20x22	9-7	3¼x5-34	¼	800	505	555
HTS 100F2 HTL 100F2			100,000	.85		22	29	82	22x22	9-9	3¼x6-36	¼	850	540	590
HTS 125F2 HTL 125F2			125,000	1.0		22	29	92*	22x22	10-8	3¼x6-38	¼	1100	570	620
HTS 100F3 HTL 100F3	C3R1	Q3AT or Q3AV	100,000	.85	33,000	22	29	82	22x22	9-9	3¼x5-34	⅓	1200	550	600
HTS 125F3 HTL 125F3			125,000	1.0		22	29	92*	22x22	10-8	3¼x6-36	⅓	1200	580	630

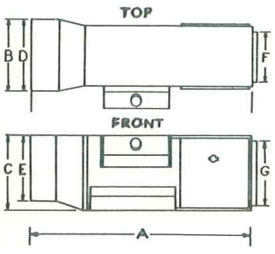
*FOR MODELS "HTS 125X F2" AND "F3", DIMENSION "C" IS 88 IN. ALL OTHER SPECIFICATIONS ARE SAME AS THE "HTS 125 F2" AND "F3".

COUNTERFLOW MODELS



COMPLETE UNIT NUMBER	CONDENSING UNIT NO.	COIL NUMBER	BTU/HR. INPUT GAS	GAL. PER HR. OIL	BTU COOLING	CABINET WIDTH A	CABINET DEPTH B	CABINET HEIGHT C	BASE FOR COIL D x E	BLOWER	DRIVE	MOTOR	CFM AT .2 IN. EXTERNAL STATIC PRESSURE	SHIPPING WEIGHT GAS	SHIPPING WEIGHT OIL
WTS 80F2 WTL 80F2	C2R1	Q3AT or Q3AV	80,000	.72	23,000	20	24½	83	20½x25	9-7	3¼x5-36	¼	800	510	560
WTS 100F2 WTL 100F2			100,000	.85		20	27	83	20½x27½	9-9	3¼x5-36	¼	850	535	575
WTS 125F2 WTL 125F2			125,000	1.0		22	29	85	22½x29½	10-8	3¼x5-38	⅓	1100	570	620
WTS 100F3 WTL 100F3	C3R1	Q3AT or Q3AV	100,000	.85	33,000	20	27	83	20½x27½	9-9	4x5-36	⅓	1000	545	585
WTS 125F3 WTL 125F3			125,000	1.0		22	29	85	20½x29½	10-8	3¼x5-38	⅓	1200	580	630

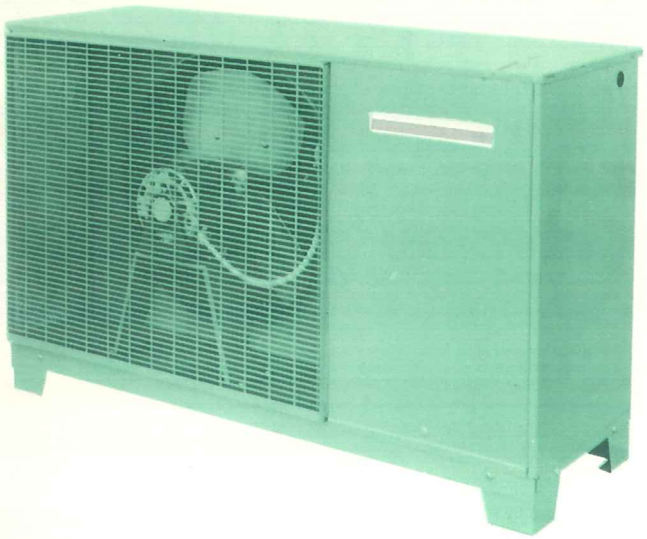
HORIZONTAL MODELS



COMPLETE UNIT NUMBER	CONDENSING UNIT NUMBER	COIL NUMBER	BTU/HR INPUT GAS	GAL. PER HR. OIL	BTU COOLING	CABINET LENGTH A	CABINET WIDTH B	CABINET HEIGHT C	DUCT CONNECTIONS DISCHARGE DXE	DUCT CONNECTIONS RETURN FXG	BLOWER	DRIVE	MOTOR	CFM AT .2 IN. EXTERNAL STATIC PRESSURE	SHIPPING WEIGHT
NMS 70F2 NMS 85F2 NMS 100F2 NMS 120F2	C2R1	Q3HV	70,000 85,000 100,000 120,000		23,000	74 74 74 77	25¾ 25¾ 25¾ 25¾	22 22 22 23½	25¾x20½	10x18 12x18 14x18 16x20	9-7 9-7 10-8 10-10	3¼x5-35 3¼x5-35 3¼x6-40 3¼x8-43	¼ ¼ ¼ ¼	800 800 800 800	473 493 513 553
NMS 100F3 NMS 120F3 NMS 140F3	C3R1	Q3HV	100,000 120,000 140,00C		33,000	74 77 77	25¾ 25¾ 25¾	22 23½ 23½	25¾x20½	14x18 16x20 18x20	10-8 10-10 12-12	3¼x5-38 3¼x6-40 3¼x6-41	⅓ ⅓ ⅓	1200 1200 1200	523 563 603
S 85F2	C2R1	Q3HV		.76	23,000	90	25¾	22	25¾x20½	18x19½	10-10	3¼x6-39	¼	800	603
S 85F3 S 100F3	C3R1	Q3HV		.76 .90	33,000	90 94	25¾ 25¾	22 22	25¾x20½	18x19½ 20x19½	10-10 10-10	3¼x6-39 3¼x6-39	⅓ ⅓	1100 1200	613 628

COOLING UNITS

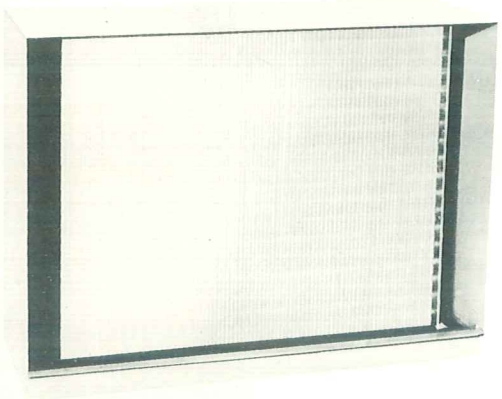
used with Combination Heating and Cooling Units or to add to existing heating installations.

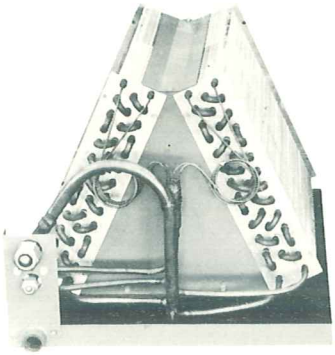


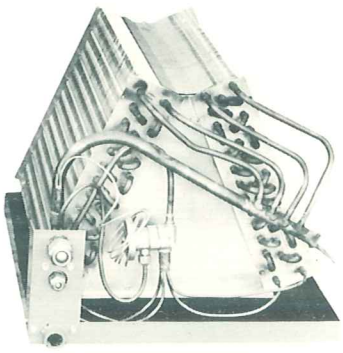
COMPACT, EFFICIENT CONDENSERS

Attractive compact design uses minimum space. Equipped with oversized condensers for efficient uninterrupted performance. Horizontal low velocity air flow. Quiet operation. Fully accessible and weather proofed for outdoor installation.

RATED IN ACCORDANCE WITH A.R.I. STANDARD 210







"H" COILS—HORIZONTAL AIR FLOW

Designed for horizontal air flow. Uses ductwork and blower of heating system. Minimum air flow resistance. Furnished with flared fittings for easy connection to refrigerant lines. Enclosed in cabinet for single connection to ductwork or furnace. Transitions available to match horizontal furnaces.

"A" COILS — VERTICAL AIR FLOW

Designed for vertical air flow plenum installation for use with upflow or counter-flow furnaces. Uses ductwork and blower of heating system. Minimum resistance to air flow. Capillary tube or expansion valve. Flared fittings for easy connection to refrigerant lines. Fully insulated plenums available to match upflow furnaces.

DIMENSION AND SPECIFICATIONS FOR AIR COOLED CONDENSING UNITS

Unit Model Number	C2R1	C3R1	C3R3	C5R1	C5R3
Compressor Mfr.	B.W. CH 490-TA	B.W. YCH 830-TA		Copeland 4U	
Phase	Single	Single	Three	Single	Three
Voltage	208/230	230	208/220	230	208/220
Full load amps	12.0	17.0	10.5	34.8	23.4
Locked rotor amps	54.0	80.0	65	129.0	114
Fuse Size Max.	40A	60A	60A	100A	100A
Min. (Delay)	20A	30A	20A	40A	30A
Field Wire	#12	#10	#12	#6	#8
Condenser Coil (½" copper tube)					
Length	26"	26"		44½"	
Height	22½"	22½"		25"	
Sq. Feet	4.1	4.1		7.7	
Rows	3	3		3	
Aluminum Fins per inch	13	13		12	
Condenser Fan Motor 230V/60 cy/1 ph,					
6 pole permanent split capacitor	1/5 HP	1/5 HP		1/5 HP (2 Used)	
Full load amps	1.7	1.7		1.7/1.7	
Locked rotor amps	3.3	3.3		3.3/3.3	
Condenser Fan 3 blade	18"	18"		18" (2 Used)	
Condenser Air Volume c.f.m.	1850	1850		4000	
Cabinet Size					
Width	42¾"	42¾"		61¾	
Depth	15¾"	15¾"		20⅝	
Height (including feet)	27¼"	27¼"		29½	
Refrigerant Connections					
Suction line	¾" OD *	¾" OD *		1⅛" OD Sweat	
Liquid line	⅝" OD *	⅜" OD *		½" OD Sweat	
Operating Charge R-22 with 25 ft. tubing**	97 oz.	101 oz.		168 oz.	
Performance at A.R.I. Rating Conditions					
CFM Air over Evaporator	800	1,200		1,900	
BTU per hr.	23,000	33,000		57,000	
Power Consumption (compressor and fan motors)	2.7 KW	4.3 KW		6.3 KW	
Shipping Weight	230	240		510	

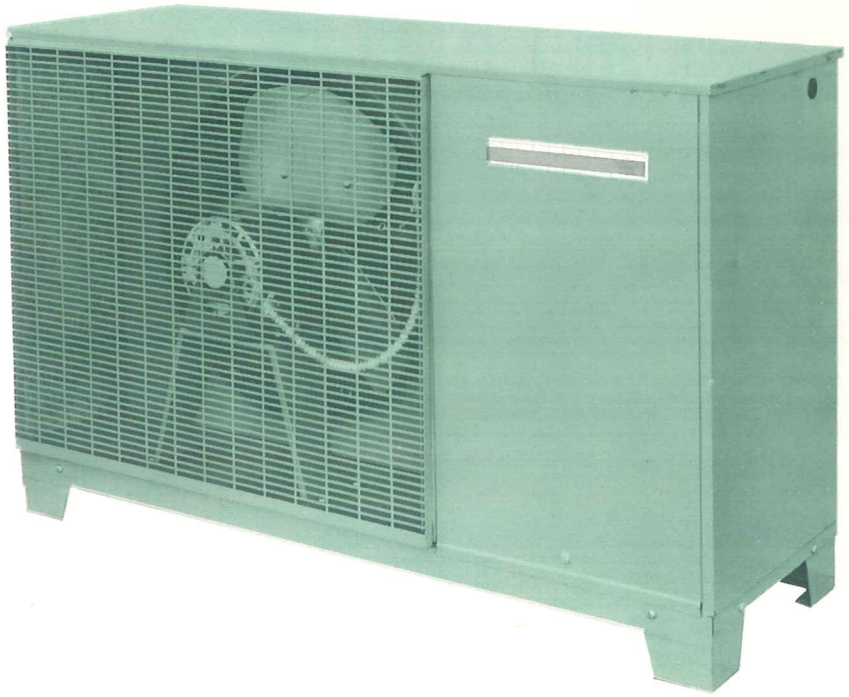
*Refrigerant Connections are Flare Fittings.
**For installation over 25 feet, see installation instructions.
Recommended 50 feet maximum liquid line.
A sheet metal parts fabricated from zinc-coated steel, phosphatized, and painted with baked-on Epon primer plus finish of baked alkyd resin enamel.
Holding Charge of 16 oz. R-22 in all Condensers.

DIMENSIONS and SPECIFICATIONS for EVAPORATORS

Evaporator Model Matching Condensing Unit Refrigerant Control Device	Q3 AV C2R1/C3R1/C3R3 Thermostatic Expansion Valve	Q3 AT C2R1/C3R1/C3R3 Capillary Tubes	Q3 HV C2R1/C3R1/C3R3 Thermostatic Expansion Valve	Q3 HT C2R1/C3R1/C3R3 Capillary Tubes	Q5 AV C5R1/C5R3 Thermostatic Expansion Valve
Air Friction (inches of water pressure drop)					
Wet @ 800 CFM	.17	.17	.06	.06	..
@ 1,200 CFM	.22	.22	.16	.16	..
@ 1,900 CFM	....	....	....	....	.30
Coil Assembly Dimensions—Height	15¾	15¾	22	22	21¾
Width	19	19	26	26	21
Length	21¼	21¼	7	7	26
Evaporator					
Copper Tubing OD	⅜	⅜	⅜	⅜	⅜
No. of Circuits	4	4	3	3	6
Aluminums Fins per inch	9	9	11	11	11
Number Rows	3	3	3	3	3
Face Area (sq. ft.)	3	3	2.9	2.9	5.8
Drain Connections (female pipe)	¾	¾	¾	¾	¾
Refrigerant Connections					
Suction (in.)	¾*	¾*	¾*	¾*	1⅛ OD Sweat
Liquid (in.)	⅜*	⅜*	⅜*	⅜*	½ OD Sweat
Shipping Weight	35	35	38	38	60

*Refrigerant Connections are Flare Fittings.

HEATING AND AIR CONDITIONING UNITS



SUMMER AIR CONDITIONING UNITS (Remote Condensing Units)

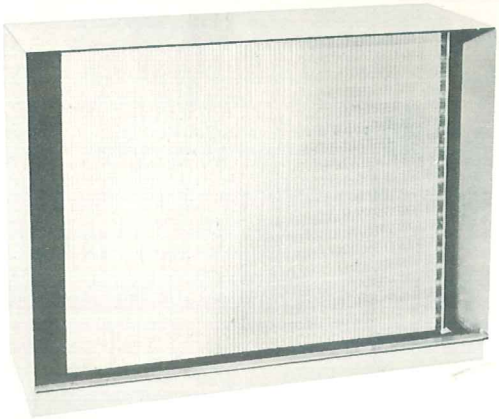
This modern dependable condensing unit when coupled with a cooling (evaporator) coil can be added to your present warm air heating system to convert it to a complete "year round" air conditioning system or it can be used as part of a new installation to provide 12 months of comfort. Used with an air handling unit it can become a completely independent summer air conditioning system.

The attractive weather proof cabinet is fabricated of zinc coated steel phosphate treated and given two coats of paint for long life and to preserve its attractive appearance. Many engineering features make this condensing unit quieter and easier to service than other equipment on the market. Condensed air is drawn through the condensing coil minimizing noise and providing most effective use of the entire coil surface. The compressor and all electrical components are enclosed in a separate sound proof, weather proof compartment for quiet operation and easy accessibility. All necessary installation and service checks can be made with the unit running to eliminate guess work.

DIMENSIONS and SPECIFICATIONS for AIR COOLED CONDENSING UNITS

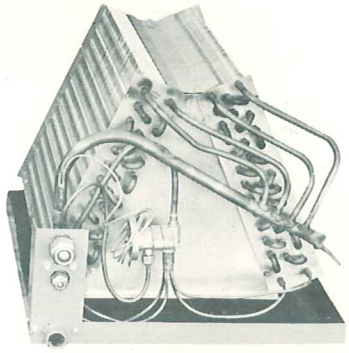
Unit Model Number	C2R1	C3R1	C3R3	C3.5R1	C3.5R3	C4R1	C4R3	C5R1	C5R3
Compressor Mfr.	B.W. CH 490-TA-5	B.W. YCH 830-TA-2	B.W. YH 830-TA-3	B.W. YCH 1020-TA-2	B.W. YH 1020-TA-3	Tecumseh CL41ZA17	Tecumseh CL41ZA17	Copeland 4U	
Phase	Single	Single	Three	Single	Three	Single	Three	Single	Three
Voltage	208/230	230	208/220	230	208/220	230	208/220	230	208/220
Full load amps	14.8	19.0	12.0	25.5	13.9	29.0	18.2	34.8	23.4
Locked rotor amps	54.0	80.0	65	115.0	84	125.0	100.0	129.0	114
Fuze Size Max.	40A	60A	60A	60	60	60	60	60	60A
Fuze Size Min. (Delay)	20A	30A	20A	40	20	40	30	40A	30A
Field Wire	#10	#10	#12	#8	#12	#8	#10	#6	#8
Condenser Coil									
Length	26"	26"		26"		44½"		44½"	
Height	22½"	22½"		23"		25"		25"	
Face Area (Sq. Ft.)	4.1	4.1		4.2		7.7		7.7	
Condenser Fan Motor 230V/60 cy/1 ph. 6 pole permanent split capacitor	1/5 HP	1/5 HP		1/3 HP		1/5 HP (2 Used)		1/5 HP (2 Used)	
Full load amps	1.7	1.7		2.5		1.7/1.7		1.7/1.7	
Locked rotor amps	3.3	3.3		7.6		3.3/3.3		3.3/3.3	
Condenser Fan	18"	18"		20"		18" (2 Used)		18" (2 Used)	
Condenser Air Volume c.f.m.	1850	1850		2150		4000		4000	
Cabinet Size									
Width	42¾"	42¾"		42¾"		61¾"		61¾"	
Depth	15¾	15¾"		15¾"		20⅝"		20⅝"	
Height (including feet)	27¼"	27¼"		27¼"		29½"		29½"	
Refrigerant Connections									
Suction line	¾" OD*	¾" OD*		⅞" OD sweat		1⅛" OD sweat		1⅛" OD sweat	
Liquid line	5/16" OD*	⅜" OD*		⅜" OD sweat		½" OD sweat		½" OD sweat	
Operating Charge R-22 with 25 ft. tubing**	97 oz.	101 oz.		107 oz.		168 oz.		168 oz.	
Performance at A.R.I. Rating Conditions									
CFM Air over Evaporator	800	1,200		1,500		1,600		1,900	
BTU per hr.	23,000	33,000		43,000		49,000		57,000	
Power Consumption (compressor and fan motors)	2.7 KW	4.3 KW		5.9 KW		6.4 KW		6.3 KW	
Shipping Weight	230	240		250		480		510	

*Refrigerant Connections are Flare Fittings.
**For installation over 25 feet, see installation instructions.
Recommended 50 feet maximum liquid line.
A sheet metal parts fabricated from zinc-coated steel, phosphatized, and painted with baked-on Epon primer plus finish of baked alkyd resin enamel.
Holding Charge of 16 oz. R-22 in all Condensers.



"H" COILS—Horizontal Air Flow

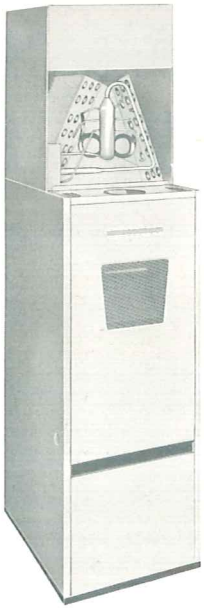
Designed for horizontal air flow. Uses ductwork and blower of heating system. Minimum air flow resistance. Furnished with flared fittings for easy connection to refrigerant lines on two and three ton models. Available with expansion valve or capillary tube. The "H" Coil may also be used with a "V" series air handling unit for separate cooling applications.



"A" COILS—Vertical Air Flow

Designed for vertical air flow plenum installation for use with upflow or counter-flow furnaces. Uses ductwork and blower of heating system. Minimum resistance to air flow. Available with expansion valve or capillary tube. Flared fittings for easy connection to refrigerant lines on two and three ton models.

Basement



Hi-Boy

Counterflow

COMBINATION UNITS—For Year 'Round Heating and Air Conditioning

Air conditioning can be easily added to any of these gas or oil furnaces after they have been installed. One central unit handles the entire heating and cooling for any application from two to seven and one-half horsepower. The compact condensing unit, which is placed outside the house, requires a minimum of space and is both quiet and durable for noiseless, trouble-free performance.

DIMENSIONS and SPECIFICATIONS for EVAPORATOR COILS

Coil Type Expansion Valve Model Capillary Tube Model	"A" Coil Q3AV Q3AT	"H" Coil Q3HV Q3HT	"A" Coil Q3.5AV	"A" Coil Q5AV Q5AT	"H" Coil Q5HV Q5HT
Coil Assembly Dimensions—Height	15¾	22	19¾	21¾	25
Width	19	25¾	21	21	32
Length	21¼	7	21¼	26	8⅝
Evaporator					
Face Area (Sq. Ft.)	3	2.9	4.0	5.8	4.4
Drain Connection (Female Pipe)	¾	¾	¾	¾	¾
Refrigerant Connections					
Suction (In.)	¾*	¾*	⅞" OD Sweat	1⅛" OD Sweat	1⅛" OD Sweat
Liquid (In.)	⅜*	⅜*	⅜" OD Sweat	½" OD Sweat	½" OD Sweat
Shipping Weight	35#	38#	45#	60#	65#

*Refrigerant Connections are Flare Fittings

SPECIFICATIONS for CONDENSING UNITS and COILS

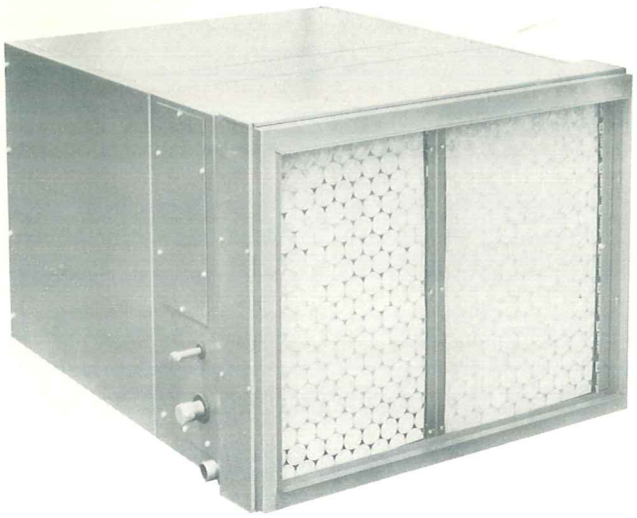
Condensing Model No.	Evaporator Coil Model No.	Evaporator CFM Required	Air Friction (in. water)	Capacity*
C2R1	Q3AV Q3AT	800	0.17	23,000
	Q3HV Q3HT	800	0.06	
C3R1 C3R3	Q3AV Q3AT	1200	0.22	33,000
	Q3HV Q3HT	1200	0.16	
C3.5R1 C3.5R3	Q3.5AV	1400	0.28	41,000
	Q5AV Q5HV	1500 1500	0.18 0.20	43,000
C4R1 C4R3	Q5AV Q5AT	1600	0.20	49,000
	Q5HV Q5HT	1600	0.23	
C5R1 C5R3	Q5AV Q5AT	1900	0.25	57,000
	Q5HV Q5HT	1900	0.30	

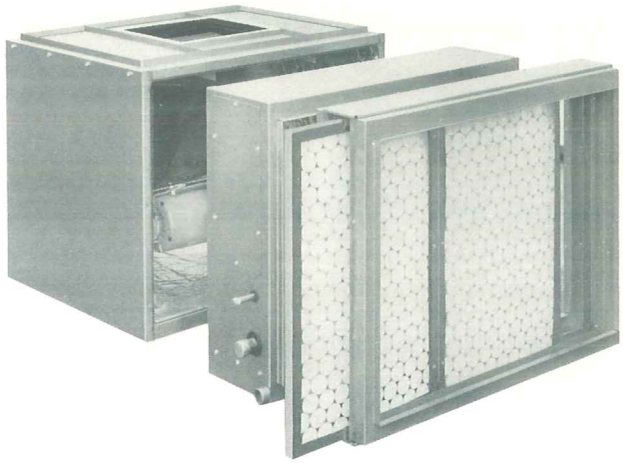
NOTE: Rated in accordance with A.R.I. Standard 210.

BLOWER COIL UNIT

ModernAire

HORIZONTAL AIR HANDLING UNITS

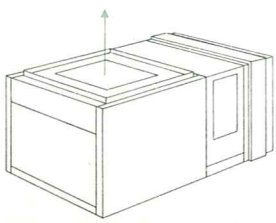




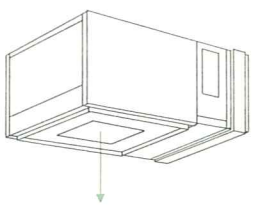
SIZED FOR 2, 3, 3.5, 4 AND 5 TON SPLIT SYSTEM INSTALLATIONS

Compact components may be purchased separately or as a complete unit for efficient summer air conditioning or all-year air conditioning with the heating duct system. Blower and filter sections are ready for on-the-job assembly with a standard horizontal coil. Generously sized filters with low velocity and high dirt capacity are attached in a frame on the inlet side of the horizontal coil and can be reached easily from any of the four sides.

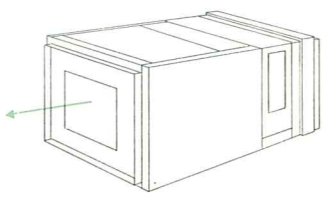
Installation is fast and simple using knock-outs on all sides for insertion of hangers. All units are shipped ready for connection to ducts in a variety of positions for quiet, comfortable, carefree performance. Cabinets are lined with heavy density neoprene coated glass fibre insulation for optimum thermal and acoustical performance. Versatile design allows air flow to be directed vertically up, down or horizontally.



VERTICAL UP



VERTICAL DOWN



HORIZONTAL

THIS UNIT HAS BEEN CERTIFIED AS COMPLYING WITH ARI STANDARD 210 • AIR-CONDITIONING • AIR-CONDITIONING • AIR-CONDITIONING

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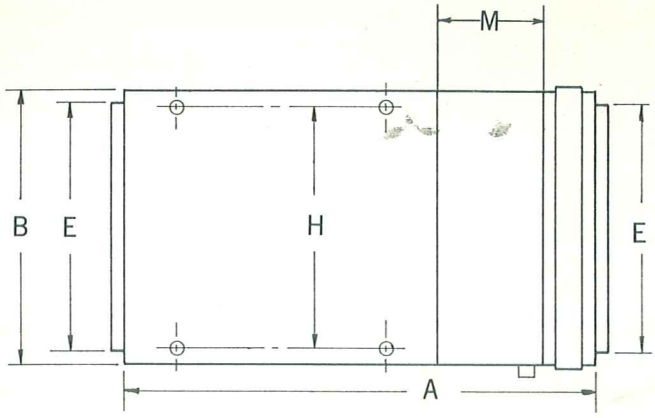
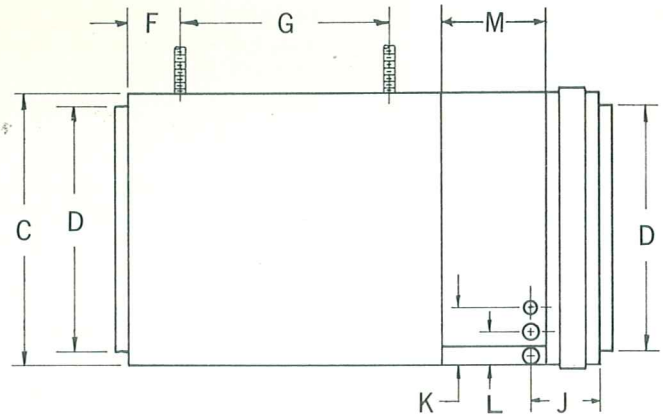
FEATURES OF HORIZONTAL AIR HANDLING UNITS



TOP VIEW



FRONT VIEW

DIMENSIONS

Unit No.	Length	Width	Height	Duct Connection		Hanger Location			Refrigerant Lines Location			Coil Width
	A	B	C	D	E	F	G	H	J	K	L	M
V2 V3	33⅜	26	22	20	24	3	16	25	6	5	3	7
V5	38½	32	26	22	30	3½	18	31	5 13/16	8½	4½	8⅝

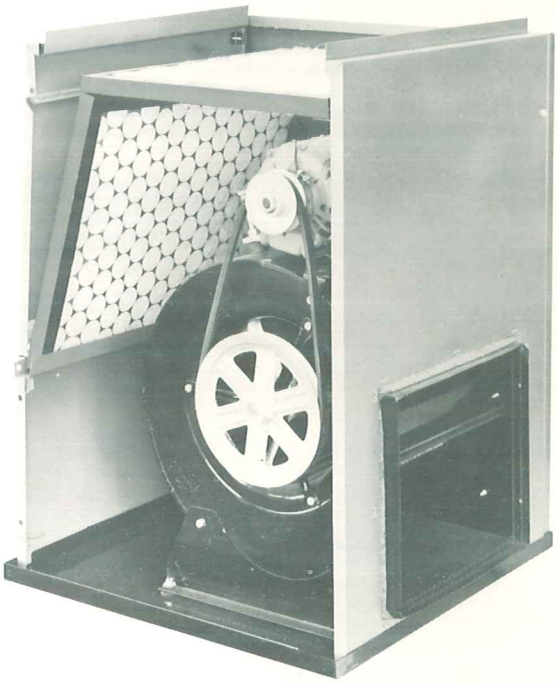
SPECIFICATIONS

Unit No.	Motor 115V H.P.	Drive	Filter Size	Coil Fan Area Sq. Ft.	Condensate Drain	Refrig. Conn.		Shipping Weight
						Suction	Liquid	
V2	⅙	3¼ x7-42	20x25	2.9	¾ FPS	¾ SAE	⅜ SAE	105
V3	¼	3¼ x6-40	20x25	2.9	¾ FPS	¾ SAE	⅜ SAE	105
V5	½	4x7-44	(2)-16x25	4.4	¾ FPS	1⅛ ODS	½ ODS	140

PERFORMANCE DATA

UNIT NO.	MATCHING CONDENSER SECTION	EVAPORATOR		A.R.I. CERT. CAP. B.T.U.	C.F.M. @ 0.2" EXT. EVAP. & FILTERS IN PLACE
		EXPANSION VALVE	CAPILLARY TUBE		
V2	C2R1	Q3HV	Q3HT	23,000	800
V3	C3R1 C3R3	Q3HV	Q3HT	33,000	1200
V5	C3.5R1 C3.5R3	Q5HV	—	43,000	1500
V5	C4R1 C4R3	Q5HV	—	48,000	1600
V5	C5R1 C5R3	Q5HV	Q5HT	57,000	1900

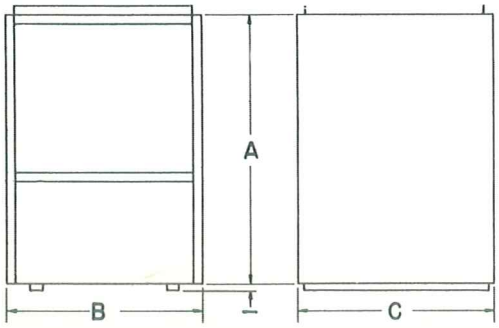
BLOWER-FILTER UNIT .....



The compact blower-filter unit, designed for attachment to either new or old gravity furnaces with round or square case, has full base with channels and provides forced air circulation under positive pressure. The large quiet blower has a large volume capacity for comfortable heating or use with an additional air conditioning unit.

With the removal of the free-lift access panel, the entire unit, including filters and blower is easily reached for cleaning, replacing, and servicing. The compact steel cabinet, beautifully finished in colorful baked enamel, is delivered in one carton completely assembled with blower, motor, drives, and filters.

BLOWER-FILTER UNIT



DIMENSIONS

No.	A Height	B Width	C Depth	Return Air Opening	Blower Discharge Opening
V-10	30″	22″	22″	20″ x 20″	13½″ x 11½″
V-12	33″	28″	24″	22″ x 26″	16″ x 14″

SPECIFICATIONS

No.	Mtr. H. P.	Drive	Number and Size Filters	Ship Wt.
V-10	1/6	3¼ x 8-40	2-(16″ x 20″)	80
V-12	1/4	3¼ x 10-46	1-(16″ x 25″) 1-(20″ x 25″)	110

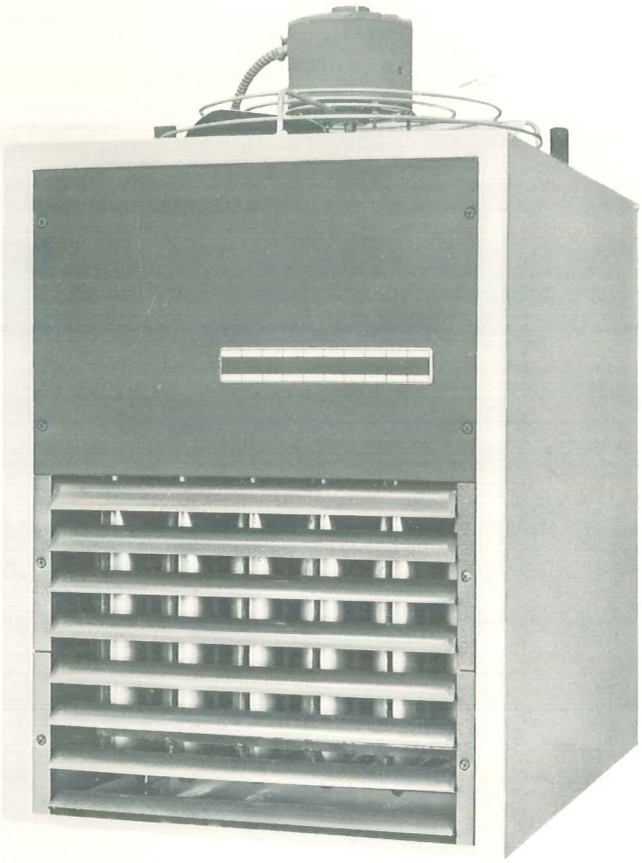
PERFORMANCE DATA

Unit No.	Volume Cu. Ft. Per Min.	Outlet Vel. Ft./Min.	⅛″ S.P.		¼″ S.P.		⅜″ S.P.		½″ S.P.		⅝″ S.P.		¾″ S.P.		1″ S.P.		1¼″ S.P.		1½″ S.P.	
			R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.	R.P.M.	H.P.
	600	592	353	.022																
	700	690	363	.025	490	.050														
	800	788	375	.035	495	.060	600	.100												
V-10	900	888	390	.047	505	.075	605	.110	690	.145										
Outlet	1000	988	405	.060	515	.085	610	.125	693	.165	773	.185								
Area	1200	1184	437	.085	540	.110	625	.150	705	.200	780	.230	850	.300						
1.015	1400	1380	472	.115	570	.168	652	.200	727	.250	795	.285	860	.340	980	.450	1090	.580		
Sq. Ft.	1600	1576	512	.160	605	.222	679	.260	752	.312	820	.370	880	.410	993	.530	1098	.660	1200	.850
	1800	1774	548	.220	637	.280	710	.330	780	.390	842	.445	900	.490	1010	.605	1108	.730	1205	.910
	1000	695	288	.035																
	1200	834	302	.050	402	.085														
	1400	972	317	.065	410	.100	490	.140												
	1600	1111	335	.088	422	.128	497	.160	565	.210										
V-12	1800	1250	355	.120	438	.160	508	.200	570	.240	635	.305	688	.355						
Outlet	2000	1390	377	.150	455	.202	520	.250	580	.280	640	.340	695	.420						
Area	2200	1530	400	.190	472	.250	535	.300	592	.340	650	.410	705	.480	802	.610				
1.44	2400	1668	420	.225	492	.305	552	.360	605	.400	660	.460	712	.560	808	.685	895	.85		
Sq. Ft.	2600	1804	445	.285	512	.360	570	.415	620	.465	672	.530	720	.615	815	.770	900	.925	980	1.05
	2800	1944	469	.345	535	.430	588	.485	637	.535	688	.605	732	.686	822	.833	906	1.02	982	1.115
	3200	2222	519	.490	580	.585	628	.646	675	.720	720	.800	762	.880	845	1.024	922	1.215	995	1.375

Capacity ratings are based on tests conducted on each blower size in accordance with standard test code of the A. S. H. & A. E. and N. A. F. M.

KMS GAS FIRED Unit Heater Model

ModernAire UNIT HEATERS .....



- ★ TOP MOUNTED FAN
- ★ ATTRACTIVE DESIGN
- ★ FRONT, BOTTOM OR SIDE DISCHARGE
- ★ ENCLOSED CONTROLS
- ★ CAST IRON BURNERS

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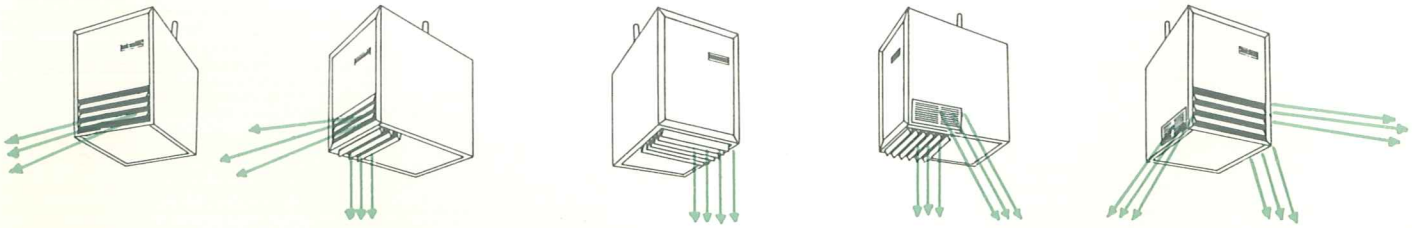
Approved for Natural, Manufactured Mixed or Liquefied Petroleum Gas



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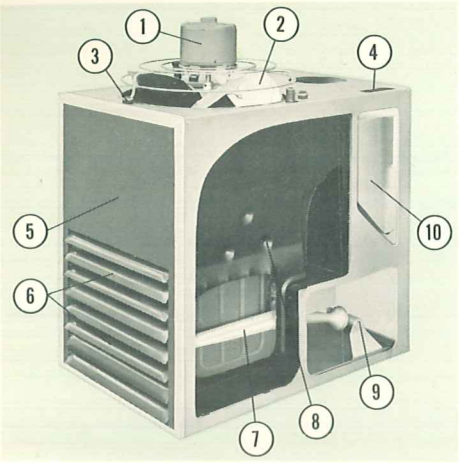
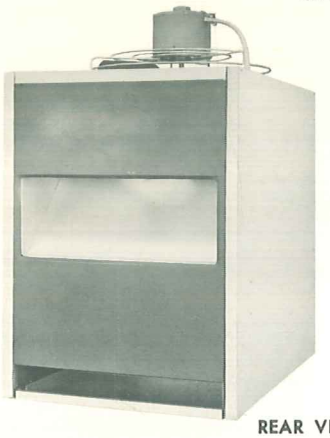
DAYTON, OHIO

UNIT HEATERS

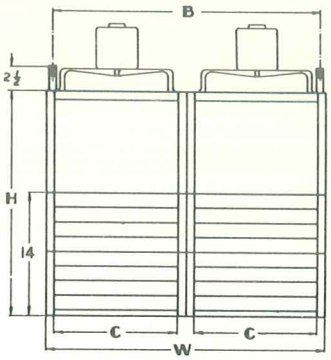


CUTAWAY VIEW

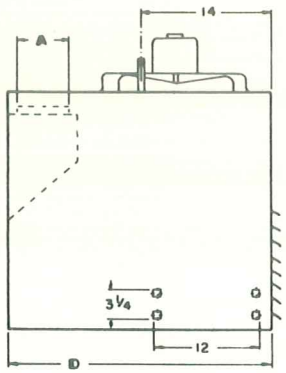
1. Totally enclosed motor requires no oiling.
2. Top mounted fan increases overall efficiency of unit by pulling warm air from ceiling.
3. Rubber insulated fan guard insures quiet performance.
4. Openings on rear of top are provided for wiring on left side and gas piping on right side.
5. Durable baked enamel finish on casing of 21 ga. steel.
6. Two louver assemblies either of which can be easily interchanged with bottom panels for downward discharge.
7. Precision "shell molded" cast iron burners with stainless steel burner ribbon. Burners are positively located in heating sections and are easily removed for cleaning if required.
8. Die formed individual heating sections made of cold roll or aluminized* steel.
   (*Optional at extra cost)
9. Totally enclosed manifold, combination gas valve , fan switch, limit switch, and junction box.
10. Totally enclosed draft diverter with top outlet.



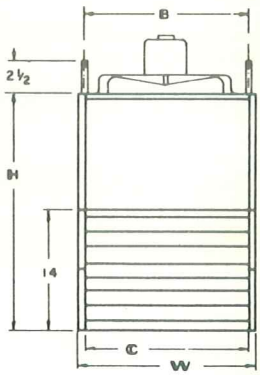
REAR VIEW



KMS 200 - 260 - 320



ALL KMS



KMS 65 - 80 - 100 - 130 - 160

DIMENSIONS

MODEL	CABINETS			FLUE DIA. A	HANGER WIDTH B	LOUVER WIDTH C	PIPE SIZE		SHIP-PING WT.
	HEIGHT H	WIDTH W	DEPTH D				NAT. MIX. L.P.	M.F.D.	
KMS 65	27	14	29½	4	12⅜	10⅜	½	½	140
KMS 80	27	17	29½	5	15⅜	13⅜	½	½	160
KMS 100	27	20	29½	6	18⅜	16⅜	½	½	180
KMS 130	27	26	29½	6	24⅜	22⅜	½	¾	200
KMS 160	27	32	29½	7	30⅜	28⅜	½	1	260
KMS 200	27	40	29½	8	38⅜	2-16⅜	½	1	360
KMS 260	27	52	29½	8	50⅜	2-22⅜	¾	1	400
KMS 320	27	64	29½	10	62⅜	2-28⅜	¾	1	520

SPECIFICATIONS

MODEL	INPUT	OUTPUT	FAN DIA.	MOTOR			C.F.M.
				H.P.	TYPE	R.P.M.	
KMS 65	65,000	52,000	12	1/12	S.P.	1500	800
KMS 80	80,000	64,000	14	1/12	S.P.	1050	970
KMS 100	100,000	80,000	16	1/12	S.P.	1050	1200
KMS 130	130,000	104,000	20	1/6	P.S.C.	1050	1600
KMS 160	160,000	128,000	20	1/5	P.S.C.	1050	2000
KMS 200	200,000	160,000	2-16	2-1/12	S.P.	1050	2400
KMS 260	260,000	208,000	2-20	2-1/6	P.S.C.	1050	3200
KMS 320	320,000	256,000	2-20	2-1/5	P.S.C.	1050	4000

Cabinet height does not include motor projection.
Min. clearances to combustibles—6 in. sides, rear and bottom, 12 in. top.

Hangers — ½ in. threaded pipe.
Side knockouts for 4 x 12 grille or 3¼ x 12 stack pipe.

MODERNAIRE
FURNACE LINE
For 1962

DEALER LIST PRICES

DISTRIBUTED EXCLUSIVELY BY

OHIO FURNACE COMPANY

1003 Kinnear Road
Columbus 12, Ohio
HUdson 6-5287

1944 Stanley Avenue
Dayton 4, Ohio
BALDwin 3-1218

MODERNAIRE GAS FIRED FURNACES

UNIT NUMBER	LIST PRICE	INPUT BTU/HR	OUTPUT BTU/HR	SHIPPING WEIGHT	ACCESSORY LIST PRICES
BASEMENT UNITS					Matching Plenum for cooling coil
GB 100D	$256.00	100,000	80,000	240	-----
GB 100	274.00	100,000	80,000	240	$47.00
GB 125	335.00	125,000	100,000	270	47.00
GB 160	418.00	160,000	128,000	330	57.00
GB 200	582.00	200,000	160,000	420	62.00

					Matching Plenum for cooling coil	Return Air Drops
HI-BOY UNITS						
*GU 50D	$204.00	50,000	40,000	160	$-----	$16.00
*GU 50	220.00	50,000	40,000	160	26.00	16.00
*GU 60D	204.00	60,000	48,000	160	-----	16.00
*GU 60	220.00	60,000	48,000	160	26.00	16.00
GU 80D	212.00	80,000	64,000	210	-----	16.00
GU 80	231.00	80,000	64,000	210	31.00	16.00
GU 100D	229.00	100,000	80,000	240	-----	17.00
GU 100	248.00	100,000	80,000	240	36.00	17.00
GU 125	306.00	125,000	100,000	270	36.00	19.00

						Base for COMBUSTIBLE Floor
COUNTERFLOW UNITS						
*GD 50D	$212.00	50,000	40,000	170	$-----	$ 8.00
*GD 50	228.00	50,000	40,000	170	21.00	8.00
*GD 60D	212.00	60,000	48,000	170	-----	8.00
*GD 60	228.00	60,000	48,000	170	21.00	8.00
GD 80D	233.00	80,000	64,000	205	-----	8.00
GD 80	250.00	80,000	64,000	205	21.00	8.00
GD 100D	256.00	100,000	80,000	220	-----	9.00
GD 100	275.00	100,000	80,000	220	25.00	9.00
GD 125	335.00	125,000	100,000	260	29.00	10.00

HORIZONTAL UNITS				
*GH 70D	$287.00	70,000	56,000	200
*GH 70	306.00	70,000	56,000	200
*GH 85D	302.00	85,000	68,000	220
GH 85	320.00	85,000	68,000	220
*GH 100D	324.00	100,000	80,000	240
GH 100	344.00	100,000	80,000	240
GH 120	424.00	120,000	96,000	280
GH 140	460.00	140,000	112,000	320

*Items marked with asterisk (*) are not regularly stocked.
Units with -D suffix are direct drive.
All units completely assembled and wired.
M-H controls (T86A - L498B - V8235) available on special order.
Prices upon application.

OHIO FURNACE COMPANY October 12, 1962

MODERNAIRE COOLING UNITS

CONDENSING UNITS - AIR COOLED.

MODEL	SPECIFICATIONS	LIST PRICE	SHIPPING WEIGHT
C2R1	23,000 BTU Single Phase	$614.00	245
C3R1	33,000 BTU Single Phase	780.00	245
C3R3	33,000 BTU Three Phase	770.00	245
C3.5R1	43,000 BTU Single Phase	915.00	245
C3.5R3	43,000 BTU Three Phase	905.00	250
C4R1	48,000 BTU Single Phase	1020.00	380
C4R3	48,000 BTU Three Phase	1008.00	385
C5R1	57,000 BTU Single Phase	1270.00	390
C5R3	57,000 BTU Three Phase	1228.00	395

Price includes M/H control panel, drier, and protection plan on Condensing unit. Price does not include cooling thermostat nor refrigerant as unit is shipped with holding charge only.

"A" COILS (For use with Coil Cabinest)

NUMBER	CAPACITY	LIST PRICE
Q3AV	2,3 or 3.5 tons	$148.00
Q5AV	4 or 5 tons	229.00

"H" COIL (Horizontal)

Q3HV	2, 3 or 3.5 tons	$168.00
Q5HV	4 or 5 tons	229.00

BLOWER FILTER UNIT WITH "H" COIL

V 2 HV	2 ton	$318.00
V 3 HV	3 or 3.5 ton	324.00
V 5 HV	4 or 5 ton	414.00

NOTE: Two and three ton evaporators and condensers equipped with flare fittings ---- all others with sweat fittings.

All units shipped with holding charge only.

MODERNAIRE OIL FIRED FURNACES

WITH M/H CONTROLS

UNIT NUMBER	LIST PRICE	OUTPUT BTU/HR	FIRING RATE GAL./HR.	SHIPPING WEIGHT	ACCESSORY LIST PRICE
BASEMENT UNITS					Matching Plenum for cooling coil
OB 80D	$443.00	80,000	.72	280	$ -----
OB 90	466.00	95,000	.85	280	47.00
OB 112	528.00	112,000	1.0	320	47.00
OB 140	608.00	140,000	1.25	375	57.00
OB 196	780.00	196,000	1.75	465	62.00
HI-BOY UNITS					Return Air Drop
OU 72D	$414.00	72,000	.65	270	----- $16.00
CU 80	430.00	80,000	.72	270	$31.00 16.00
*OU 84D	434.00	84,000	.75	310	----- 17.00
OU 95	453.00	95,000	.85	310	36.00 17.00
OU 112	511.00	112,000	1.0	330	36.00 19.00
COUNTERFLOW UNITS					Base for COMBUSTIBLE Floor
OD 72D	$434.00	72,000	.65	275	----- $ 8.00
OD 80	453.00	80,000	.72	275	$21.00 8.00
OD 90D	459.00	90,000	.8	290	----- 9.00
OD 95	478.00	95,000	.85	270	25.00 9.00
OD 112	547.00	112,000	1.0	315	29.00 10.00
HORIZONTAL UNITS					
* OH 72D	$458.00	72,800	.65	300	
OH 72	476.00	72,800	.65	300	
* OH 84D	466.00	84,000	.75	300	
OH 95	485.00	95,200	.85	300	
OH 112	522.00	112,000	1.00	300	
* OH 140	616.00	140,000	1.25	340	
* OH 200	864.00	200,000	1.80	460	
* OH 250	1114.00	250,000	2.25	535	
* OH 325	1654.00	325,000	3.00	660	

* Items marked with asterisk (*) are not regularly stocked.
Units with -D suffix are direct drive.
All units completely assembled and wired, except horizontal.
For substitution of two stage pump add $10.00 to List Price.
Equipped with M/H controls (T86 - L498B - RA816)

MODERNAIRE UNIT HEATERS

UNIT NUMBER	LIST PRICE	INPUT BTU/HR	OUTPUT BTU/HR	SHIPPING WEIGHT
KMS 65	$239.00	65,000	52,000	140
KMS 80	260.00	80,000	64,000	165
KMS 100	280.00	100,000	80,000	185
KMS 130	322.00	130,000	104,000	220
KMS 160	385.00	160,000	128,000	285
KMS 200	490.00	200,000	160,000	390
KMS 260	594.00	260,000	208,000	510
KMS 320	718.00	320,000	256,000	590

Standard equipment includes: 24 volt controls and T88 thermostat; fan switch and limit switch; vent manifold on KMS 200, 260 and 320 units.

Optional equipment on special order - 110 volt control equipment without thermostat available at list price deduction of $30.00. Use MH T44 thermostat or equal.

Aluminized steel heating element available on special order at extra cost.

MACOMBER

STEEL ROOF TRUSSES

U. S. PATENT NO. 1678738 AND PATENTS PENDING

SAFE LOADING TABLES

AND

STANDARD SPECIFICATIONS

One of the Massillon Line
of
Standard Steel Building Products

THE MACOMBER STEEL COMPANY
10TH AND BELDEN, N. E. CANTON, OHIO

Catalog No. 616-A
Revised Edition, June 1, 1930

GENERAL

STEEL roof trusses are used largely for supporting roof construction where a clear open floor space free from interior columns or walls is desired. This construction is vital to gymnasiums, auditoriums, theatres and airplane hangars. It is an essential feature in building garages and certain types of industrial buildings.

Steel is particularly fitted for building roof trusses. It is the strongest material for its weight known to the building industry. The processes in its manufacture make for consistent safety and security.

Two forms of roof trusses have proven of value to the building industry—the curved chord or "bow string" and the "A" type truss. The former type is a most economical form of truss in theory and practice. It results in a lower building height with a minimum of material used in the end walls of the building, a minimum of dead air space to heat in winter and a minimum of roofing material. In addition the curved chord truss is adaptable for all types of roofing except overlapping decking dependent upon the pitch of the roof such as slate and tile. The "A" type truss is suitable with all types of decking.

Roof trusses can be and have been used for all spans within the range of building requirements. They are particularly economical for spans up to 120 ft. Spans under 36 feet are usually framed to advantage with steel beams.

MACOMBER ROOF TRUSSES

Through the Macomber system of standardization standard trusses are manufactured for all spans from 36 feet to 120 feet. Each truss is designed for a specific maximum span. The end construction is reinforced and designed for any span down to its minimum. In this manner standard stock size trusses are available for the complete range of economical roof spans.

As an example of Macomber standardization, the 38-CL-truss is designed for a total load of 35,000 pounds for a 38 foot span. This truss will carry a total load of 37,000 pounds when used for its minimum span—36 feet. The total safe load for intermediate spans may be obtained by interpolation. In the same manner the 40-CL truss takes care of spans from 40 feet down to 38 feet. The CH series of trusses duplicates the CL series for heavier roof loads.

The trusses are designed in accordance with the American Institute of Steel Construction specifications. Safe loading tables and overall dimensions are printed on the following pages. As the Institute specifications have been adopted almost universally for structural steel designing the tables serve for all except a few cities. Safe loads based on specifications other than Institute specifications will be furnished where required.

TRUSS DETAILS

All trusses are designed with conventional double angle top and bottom chords. Angles and plates serve for the web and end construction. Standard structural grade steel, rolled from new billets, is used throughout. No metal less than ¼ inch in thickness is used.

All shop connections are fabricated with modern electric arc welding. Solid beads of metal are added at the connections that provide a factor of safety of five. Rigid inspection insures connections that are stronger than the members they unite.

The shorter trusses are shipped in one piece. The longer trusses are shipped in two or three sections for convenience in handling and erecting in the field. The truss splices are designed for bolting with holes reamed to 1/64″ clearance and fitted with turned bolts. The trusses are assembled and match marked in fabricating to insure speed and accuracy in assembling on the job.

The trusses are anchored to masonry pilasters with standard wall anchors. The trusses rest on steel bearing plates which may be bought locally and bricked into the pilaster or these plates may be purchased welded to the truss. The truss bottom chords are punched for bolting or riveting to steel columns where supported on steel. A standard extra charge is made for punching truss top chords for attaching steel purlin construction other than Macomber Bar Joists and Nailer Joists which are attached with special connection bolts that do not require top chord punching.

TRUSS BRACING

Bracing is recommended for all trusses to assist in lining them up and holding them in place during the erection period. This is all that is required of the bracing in buildings with shorter spans as the roof construction effectively braces the trusses after the building is completed. Buildings with longer truss spans should be provided with bracing that will transmit and transfer wind stresses. Three types of standard bracing have been designed to take care of practically all normal requirements. Two of these—the "X" and "Z" types—are illustrated on page 3. Special bracing is designed where standard bracing does not fit the requirements of the building. This particularly applies to buildings where line shafting or machinery is suspended from the trusses.

ROOF TRUSS DESIGNING

The standardized form of Macomber Roof Trusses permits an architect or engineer to lay out and design a building with these steel trusses as easily and accurately as with simple beams. Any Macomber representative can prepare definite recommendations and quote on the necessary material except where heavier concentrated loads are to be supported from the trusses. Only a slight delay is occasioned where such special conditions must be referred to our Engineering Department.

ADVANTAGES

The standardized features of Macomber Trusses speed up every step from the preliminary layouts to the final completion of projects involving roof trusses. Prompt estimates and quotations are secured. Detailed checking of the various truss members is eliminated as all trusses are fabricated to standard shop drawings and based on the same standard approved designs. Ample stocks are maintained that permit fabrication immediately upon receipt of necessary punching details. Prompt shipment is normally made after receipt of these approved details.

Standardized shop practice and engineering designs result in savings that make Macomber Roof Truss construction decidedly economical where the advantages of steel and sound engineering practice are desired.

MACOMBER ROOF TRUSSES

Details Shown Apply to "CL" and "CH" Series

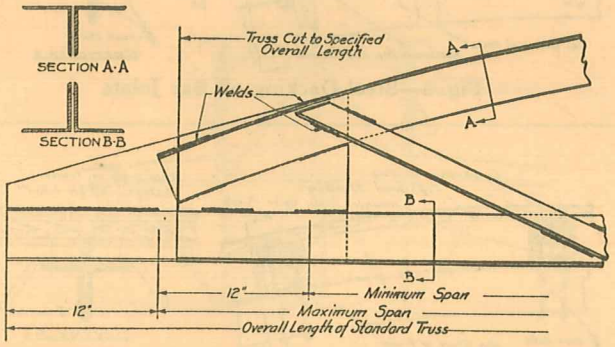


Fig. 1—Detail of Truss End

Standard trusses are shipped with overall length noted in safe loading tables unless otherwise specified. The light lines indicate truss end cut off to fit the requirements of a building. This does not affect the safe loads for trusses listed in the loading tables.

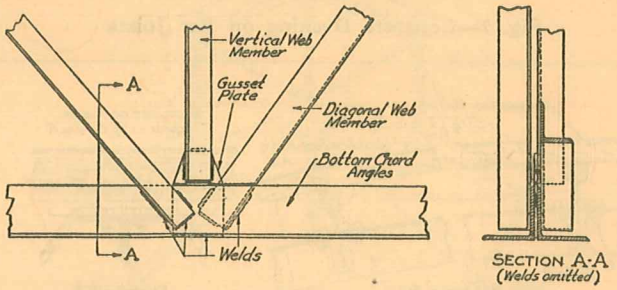


Fig. 2—Detail of Typical Welded Connection

All shop connections are fabricated with modern structural arc welding. The welds are designed with a factor of safety of five and all welds are individually inspected before painting. Filler plates are welded between top and bottom chord angles at mid-panel points.

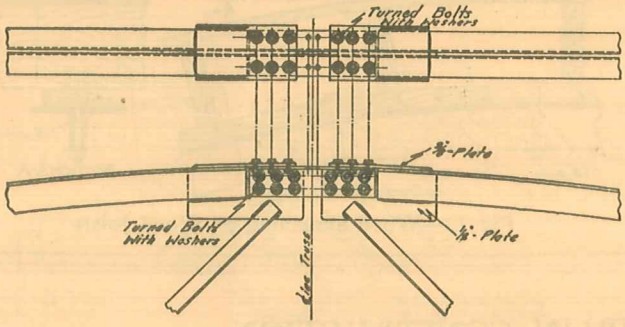


Fig. 3—Detail of Typical Bolted Splice

Trusses for spans over 44 ft. are shipped in sections for convenience in handling and erecting. A typical splice fitted with turned bolts is shown above. Holes are reamed to 1/64" clearance and trusses assembled and match marked before knocking down for shipment. Accuracy of fabrication and speed in assembly on the job are essential features of Macomber trusses.

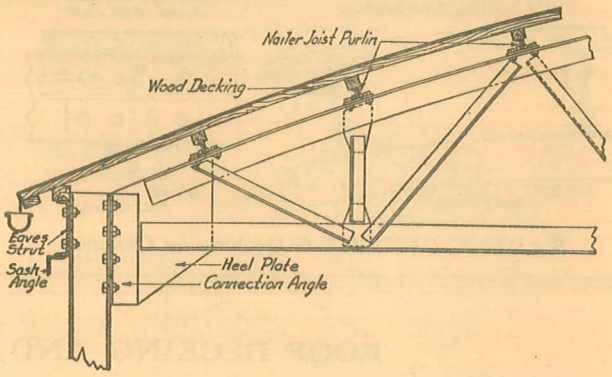


Fig. 4—Truss End Framed to Steel Column

Where trusses are framed into columns, the trusses are cut to the clear span between columns. Special heel plates and connection angles are provided for bolting to columns. Trusses may be used for any clear span between the maximums and minimums listed in the loading tables. There is usually no delay in shipment for trusses framed to columns.

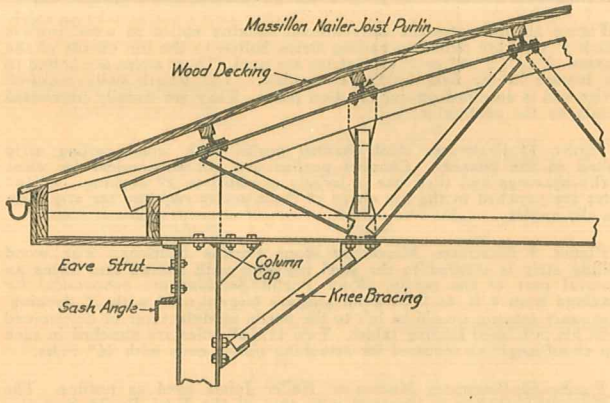


Fig. 5—Truss End Bearing on Steel Columns

Trusses normally rest on steel columns with bottom chords punched as required and bolted to column cap. Where knee bracing is required to stiffen the columns, the bottom chord is punched as required for attaching the bracing. Knee bracing, eave struts, sash angles and columns are regularly furnished as a part of Macomber service. See Macomber Catalog No. 618.

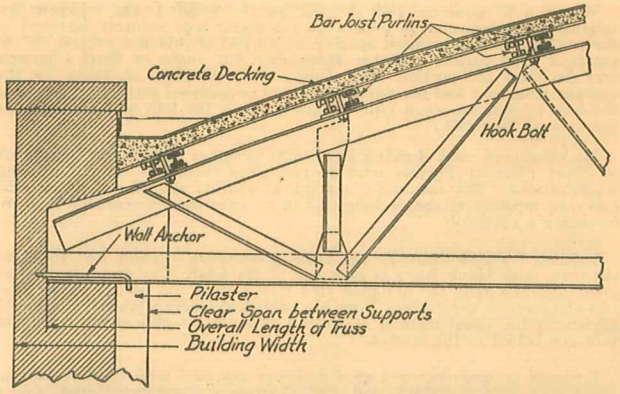


Fig. 6—Truss End Bearing on Masonry

Where trusses bear on masonry, wall anchors are provided. The ends of the truss usually do not project into the face brick. Where this occurs the trusses should be cut to allow 5 inches for face brick at each end. Steel bearing plates are required under trusses and when ordered from us are welded to the truss

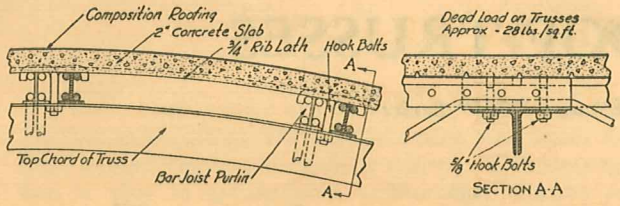


Fig. 7—Concrete Decking on Bar Joists

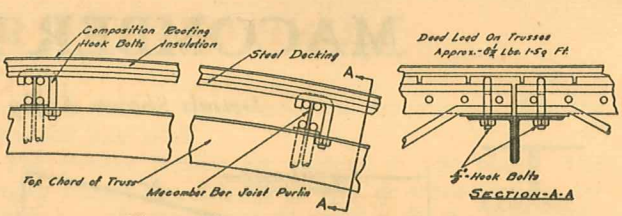


Fig. 8—Steel Decking on Bar Joists

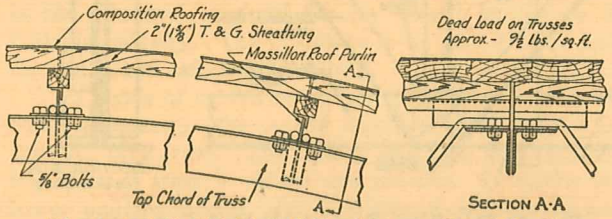


Fig. 9—2" (1⅝") T & G Decking on Roof Purlins

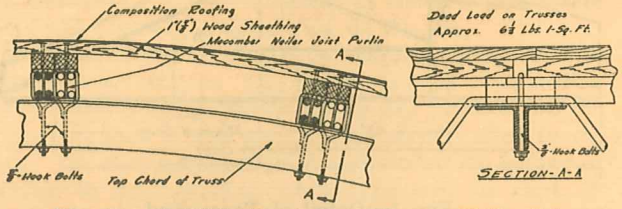


Fig. 10—1" (⅞") Wood Sheathing on Nailer Joists

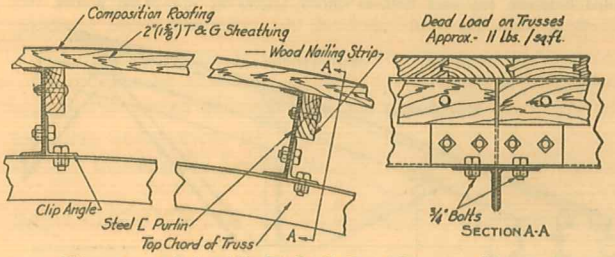


Fig. 11—2" (1⅝") T & G Decking on Channels

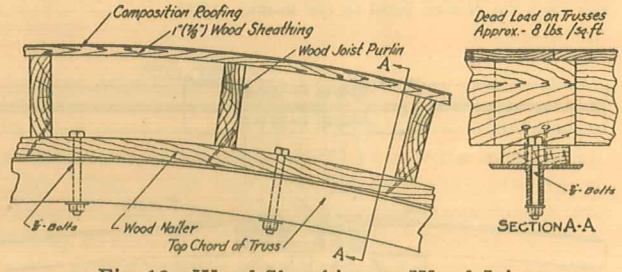


Fig. 12—Wood Sheathing on Wood Joists

ROOF DECKING AND PURLIN CONSTRUCTION ON MACOMBER ROOF TRUSSES

The type of roof decking selected determines the type of purlins best suited for carrying the decking and in turn determines the punching required in the top chords of the trusses for attaching the purlins. Sections are shown alongside of and through the top chord of the truss to illustrate different methods of attaching standard purlins.

CONCRETE OR STEEL DECKING

Where a 2" concrete slab is used for the decking, the concrete (or satisfactory substitute) is poured on rib metal lath securely fastened to the purlins. The maximum spacing of purlins should not exceed 30" to secure a good decking. Either Macomber Bar Joists or Steel Channels may be used for purlins. Bar Joists cost less than channels for the average condition and provide a rapid and economical method of securing the lath by driving wood lath wedges through the lath and between the top bars of the joists.

Manufactured steel decking is secured to either Macomber Bar Joists or Steel Channel Purlins with special clips furnished by the decking manufacturer. The maximum spacing of purlins should not exceed the carrying capacity of the decking and in no case should exceed 5 ft. 0 in. to secure a good job.

Figures 7 and 8 illustrate the usual methods of bolting Bar Joists to the truss with Hook Bolts at each end of the joist. The exact spacing of joists depends upon the designed roof load and should be left to the joist manufacturer or determined from his published loading tables. Figure 11 illustrates the usual method of bolting channels to clip angles which in turn are bolted to the trusses.

Concrete or manufactured steel deckings are used with good results on Macomber "CL," "CH" and "A" Trusses. Corrugated iron sheets provide the least expensive of incombustible deckings and are carried on the same types of purlins. Steel straps are passed under the top bars of bar joists or around the channels and riveted to the sheets. Care must be used in lapping and riveting corrugated sheets to avoid leakage when used on curved roofs.

WOOD DECKING

1" (⅞") plain sheathing, 2" (1⅝") plain sheathing and 2" (1⅝") tongue and groove are common forms of wood deckings. All are nailed to the supporting purlins. The maximum spacing of purlins should not exceed the strength of decking used. The maximum spacing for good 2" stock should not exceed 7 ft. 6 in. The maximum spacing for good 1" stock should not exceed 4 ft. 0 in. The sheathing should be ordered in lengths to span three or more purlin spacings and splices should be broken. Plain sheathing should be spliced over the purlins. Matched tongue and groove stock does not require splicing over purlins. Where 2" stock is used on curved roofs the purlins should not be spaced over 6 ft. apart at the maximum to insure a satisfactory roof.

Figure 12 illustrates the conventional decking nailed to wood purlins which in turn are nailed to nailing strips bolted to the top chords of the trusses. 2"x6", 2"x8" or 2"x10" strips are used. These strips are bolted to the trusses in the field by the contractor. The length bolts required varies and is specified on our erection plans. They are usually purchased locally by the contractor.

Figure 11 illustrates steel channel purlin with wood nailing strip bolted to the channel. Channel purlins are not economical for close purlin spacings and their use is largely confined to 2" decking. 13/16" holes are punched in the top chord of the truss as required for attaching the clip angles.

Figure 9 illustrates Macomber Roof Purlins Sections. The wood nailing strip is secured to the steel top bars with screws and forms an integral part of the purlin. Roof Purlin Sections are economical for spacings from 4 ft. to 7 ft. 6 in. and are largely used with 2" decking. The exact spacing should be left to the purlin manufacturer or determined from his published loading tables. Two 11/16" holes are punched in each top chord angle as required for attaching purlin ends with ⅝" bolts.

Figure 10 illustrates Macomber Nailer Joists used as purlins. The nailing strip feature is identical with that of the Roof Purlin Sections. The joists are economical for purlin spacings of from 18" to 48" and are used largely with 1" decking. The exact spacing of joists should be left to the joist manufacturer or determined from his published loading tables. The joists are attached to the truss top chord with special bolts as illustrated.

Note: See Macomber Steel Company catalog No. 610 for Macomber Bar Joist loading tables; No. 611 for Macomber Nailer Joist and Roof Purlin Section loading tables; No. 619 for Macomber Steel Roof Decking; No. 618 for Complete Service in Steel for One Story Buildings.

MONITOR FRAMES TRUSS BRACING AND SUSPENDED CEILINGS

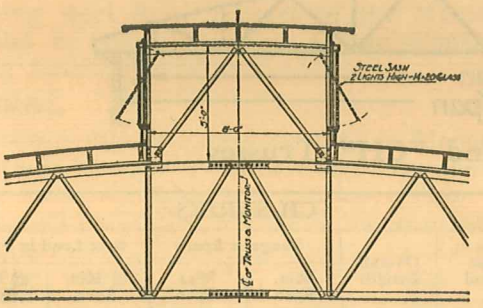


Fig. 13—Monitor Frame for CL and CH Trusses

Monitor Frames are available in above standard stock size for bolting to "CL" and "CH" trusses. Trusses and frames are assembled and match marked to insure accuracy in fabrication and speed in assembly in the field.

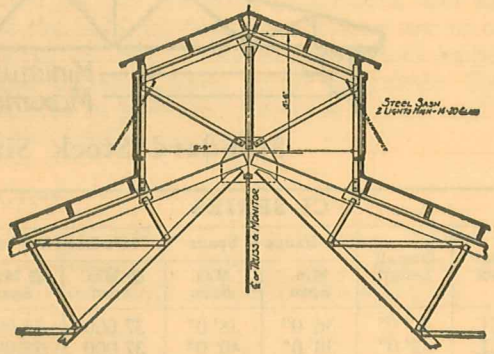


Fig. 14—Monitor Frame for A Type Trusses

Standard stock size Monitor Frames are also available for "A" trusses. These frames as well as the "CL" and "CH" frames take standard stock size steel windows, 2 lights high, 14"x20" glass size. Special monitor frames are provided to meet special requirements.

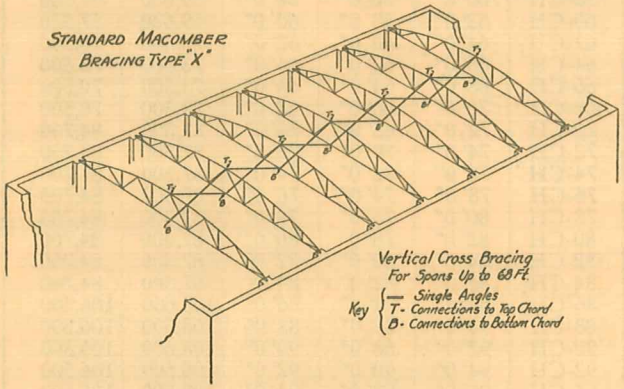


Fig. 15—Vertical Cross Bracing

Bracing is recommended to assist in lining up and erecting all trusses. The roof construction effectively braces the trusses for shorter spans after the building is completed. The above is a simple and economical vertical cross bracing recommended for spans up to 68 ft. where trusses bear on masonry.

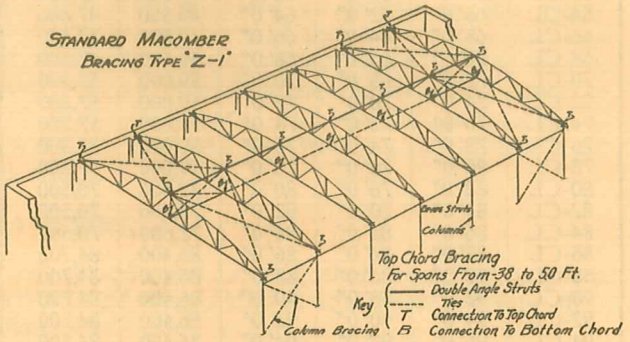


Fig. 16—Stiff Bracing for Spans up to 50 ft.

Stiff bracing is required where trusses are supported on steel columns. The above bracing is recommended for spans up to 50 ft. where trusses are framed to steel columns. In addition the columns should be braced with eave struts and cross bracing as indicated.

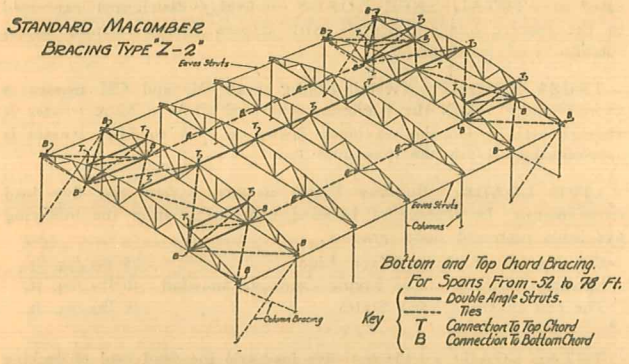


Fig. 17—Stiff Bracing for Spans over 52 ft.

Truss spans over 52 ft. require additional bracing members in end and intermediate bays. The above bracing is recommended for spans from 52 to 78 ft. Macomber Standard Type "H" bracing (not shown) takes care of all other normal conditions for spans over 78 ft.

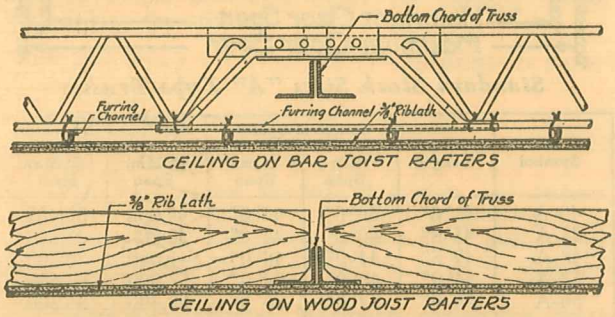


Fig. 18—Suspended Ceilings

Ceiling construction may be supported from the bottom chords of the trusses as shown above or by using a conventional suspended ceiling with the hanger wires fastened to the purlin construction. No special fabrication is required on the trusses but allowance must be made for the dead weight of the ceiling—10 lbs./sq. ft.

SAFE LOADING TABLES AND OVERALL DIMENSIONS

MACOMBER ROOF TRUSSES

Standard Stock Size "CL" and "CH" Trusses

CL SERIES

Truss Symbol	Overall Length	Range of Spans		Safe Load in Pounds	
		Min. Span	Max. Span	@ Min. Span	@ Max. Span
38-CL	40′ 0″	36′ 0″	38′ 0″	37,000	35,000
40-CL	42′ 0″	38′ 0″	40′ 0″	37,000	35,000
42-CL	44′ 0″	40′ 0″	42′ 0″	37,000	35,000
44-CL	46′ 0″	42′ 0″	44′ 0″	43,300	41,500
46-CL	48′ 0″	44′ 0″	46′ 0″	43,300	41,500
48-CL	50′ 0″	46′ 0″	48′ 0″	43,300	41,500
50-CL	52′ 0″	48′ 0″	50′ 0″	43,300	41,500
52-CL	54′ 0″	50′ 0″	52′ 0″	43,300	41,500
54-CL	56′ 0″	52′ 0″	54′ 0″	49,500	47,600
56-CL	58′ 0″	54′ 0″	56′ 0″	49,500	47,600
58-CL	60′ 0″	56′ 0″	58′ 0″	49,500	47,600
60-CL	62′ 0″	58′ 0″	60′ 0″	49,500	47,600
62-CL	64′ 0″	60′ 0″	62′ 0″	49,500	47,600
64-CL	66′ 0″	62′ 0″	64′ 0″	49,500	47,600
66-CL	68′ 0″	64′ 0″	66′ 0″	49,500	47,600
68-CL	70′ 0″	66′ 0″	68′ 0″	49,500	47,600
70-CL	72′ 0″	68′ 0″	70′ 0″	59,000	57,300
72-CL	74′ 0″	70′ 0″	72′ 0″	59,000	57,300
74-CL	76′ 0″	72′ 0″	74′ 0″	59,000	57,300
76-CL	78′ 0″	74′ 0″	76′ 0″	59,000	57,300
78-CL	80′ 0″	76′ 0″	78′ 0″	59,000	57,300
80-CL	82′ 0″	78′ 0″	80′ 0″	72,600	70,500
82-CL	84′ 0″	80′ 0″	82′ 0″	72,600	70,500
84-CL	86′ 0″	82′ 0″	84′ 0″	72,600	70,500
86-CL	88′ 0″	84′ 0″	86′ 0″	86,400	84,700
88-CL	90′ 0″	86′ 0″	88′ 0″	86,400	84,700
90-CL	92′ 0″	88′ 0″	90′ 0″	86,400	84,700
92-CL	94′ 0″	90′ 0″	92′ 0″	86,400	84,700
94-CL	96′ 0″	92′ 0″	94′ 0″	86,400	84,700
96-CL	98′ 0″	94′ 0″	96′ 0″	86,400	84,700
98-CL	100′ 0″	96′ 0″	98′ 0″	86,400	84,700
100-CL	102′ 0″	98′ 0″	100′ 0″	86,400	84,700
120-CL	122′ 0″	118′ 0″	120′ 0″	108,600	106,500

CH SERIES

Truss Symbol	Overall Length	Range of Spans		Safe Load in Pounds	
		Min. Span	Max. Span	@ Min. Span	@ Max. Span
38-CH	40′ 0″	36′ 0″	38′ 0″	42,200	41,500
40-CH	42′ 0″	38′ 0″	40′ 0″	42,200	41,500
42-CH	44′ 0″	40′ 0″	42′ 0″	42,200	41,500
44-CH	46′ 0″	42′ 0″	44′ 0″	49,500	47,600
46-CH	48′ 0″	44′ 0″	46′ 0″	49,500	47,600
48-CH	50′ 0″	46′ 0″	48′ 0″	49,500	47,600
50-CH	52′ 0″	48′ 0″	50′ 0″	49,500	47,600
52-CH	54′ 0″	50′ 0″	52′ 0″	59,600	57,300
54-CH	56′ 0″	52′ 0″	54′ 0″	59,600	57,300
56-CH	58′ 0″	54′ 0″	56′ 0″	59,600	57,300
58-CH	60′ 0″	56′ 0″	58′ 0″	59,600	57,300
60-CH	62′ 0″	58′ 0″	60′ 0″	59,600	57,300
62-CH	64′ 0″	60′ 0″	62′ 0″	73,300	70,500
64-CH	66′ 0″	62′ 0″	64′ 0″	73,300	70,500
66-CH	68′ 0″	64′ 0″	66′ 0″	73,300	70,500
68-CH	70′ 0″	66′ 0″	68′ 0″	73,300	70,500
70-CH	72′ 0″	68′ 0″	70′ 0″	87,300	84,700
72-CH	74′ 0″	70′ 0″	72′ 0″	87,300	84,700
74-CH	76′ 0″	72′ 0″	74′ 0″	87,300	84,700
76-CH	78′ 0″	74′ 0″	76′ 0″	87,300	84,700
78-CH	80′ 0″	76′ 0″	78′ 0″	87,300	84,700
80-CH	82′ 0″	78′ 0″	80′ 0″	87,300	84,700
82-CH	84′ 0″	80′ 0″	82′ 0″	87,300	84,700
84-CH	86′ 0″	82′ 0″	84′ 0″	87,300	84,700
86-CH	88′ 0″	84′ 0″	86′ 0″	108,600	106,500
88-CH	90′ 0″	86′ 0″	88′ 0″	108,600	106,500
90-CH	92′ 0″	88′ 0″	90′ 0″	108,600	106,500
92-CH	94′ 0″	90′ 0″	92′ 0″	108,600	106,500
94-CH	96′ 0″	92′ 0″	94′ 0″	108,600	106,500
96-CH	98′ 0″	94′ 0″	96′ 0″	108,600	106,500
98-CH	100′ 0″	96′ 0″	98′ 0″	108,600	106,500
100-CH	102′ 0″	98′ 0″	100′ 0″	108,600	106,500
120-CH	122′ 0″	118′ 0″	120′ 0″	142,000	140,000

Standard Stock Sizes "A" Type Trusses

Truss Symbol	Overall Length	Range of Spans		Safe Load in Pounds	
		Min. Span	Max. Span	@ Min. Span	@ Max. Span
40-A	41′ 8″	36′ 0″	40′ 0″	44,000	36,400
44-A	45′ 8″	40′ 0″	44′ 0″	38,800	35,600
48-A	49′ 8″	44′ 0″	48′ 0″	41,600	36,000
52-A	54′ 0″	48′ 0″	52′ 0″	57,000	52,600
56-A	58′ 0″	52′ 0″	56′ 0″	59,300	56,500
60-A	62′ 0″	56′ 0″	60′ 0″	63,400	59,400
64-A	66′ 0″	60′ 0″	64′ 0″	69,300	65,700
68-A	70′ 0″	64′ 0″	68′ 0″	71,000	68,200
72-A	74′ 0″	68′ 0″	72′ 0″	77,700	72,500
76-A	78′ 0″	72′ 0″	76′ 0″	98,500	93,500
80-A	83′ 0″	76′ 0″	80′ 0″	126,000	122,000
84-A	87′ 0″	80′ 0″	84′ 0″	122,000	116,000

SAFE LOADS: Trusses are designed in accordance with the American Institute of Steel Construction Specifications. All loads listed are TOTAL SAFE LOADS uniformly distributed expressed to the nearest hundred pounds with trusses braced laterally as in standard roof construction.

TRUSS HEIGHT: Overall height of all CL and CH trusses is approximately 1/10th the maximum span; of 40-A to 60-A trusses is approximately 1/4th the maximum span; of 64-A to 84-A trusses is approximately 1/5th the maximum span.

LIVE LOADS: Building Codes usually govern the live load requirements. In absence of building code information the following live loads represent usual practice.

States south of Mason-Dixon Line	25 lbs./sq. ft.
Extreme northern states having excessive snowfall	40 lbs./sq. ft.
The rest of the United States	30 lbs./sq. ft.

TOTAL LOAD: To the roof live load add the dead load of decking and purlins (see page four). Where metal lath and plaster ceiling is to be carried by the trusses add 10 lb./sq. ft. All quotations and estimates furnished by Macomber Representatives are based on and include the dead weight of trusses and bracing required. This ranges from 2 to 7 lbs./sq. ft. depending on the span and spacing of trusses and can be taken at 4 lbs./sq. ft. for average conditions. Concentrated loads such as suspended balconies or monorail systems should be clearly specified in asking for quotations.

STANDARD SPECIFICATIONS

THE following specifications are for the purpose of aiding architects and engineers in specifying steel Roof Trusses of the Macomber type and to assist Building Commissioners in drafting building code sections.

GENERAL

All trusses shown in the plans shall be Macomber Steel Roof Trusses as manufactured by the Macomber Steel Company of Canton, Ohio. The trusses shall be designed to carry the dead weight of the roof construction as shown on the plans and a live roof load of _____ pounds per square foot. (Where required) In addition the trusses are to carry concentrated loads as shown on the plans and specified as follows:_____

Full facilities are to be provided by the manufacturer at all times for the proper inspection, chemical or physical, of the materials used and the workmanship employed in the manufacture.

DESIGN

The trusses are to be designed in accordance with the specifications of the American Institute of Steel Construction. Structural steel to conform to the standard specifications of the American Society of Testing Materials for Structural Steel for Buildings shall be used for all truss members. No metal less than ¼" in thickness is to be used.

SHOP CONNECTIONS

All shop connections shall be fabricated with electric arc welding and shall be designed for a factor of safety of five. Each weld shall be individually inspected and tested in accordance with the manufacturer's standard practice.

FIELD CONNECTIONS

Where trusses are built in sections and assembled in the field, all field connections are to be designed for bolting. Truss sections shall be assembled and match marked before shipment. Turned bolts are to be provided for truss splices and holes reamed to 1/64" clearance.

BRACING

All trusses are to be adequately braced with standard Macomber bracing as recommended for the spans and roof construction specified.

BEARING

(Steel Columns) Trusses shall be connected to steel columns as shown in the plans. The truss ends shall be punched as specified for column connections. Connection bolts shall not be considered as part of the truss contract but shall be furnished with the columns.

(Masonry) Trusses shall rest on and be bricked into masonry pilasters as shown in the plans. Standard Macomber wall anchors shall be provided for anchoring trusses to the masonry. The trusses shall rest on steel bearing plates either loose or welded to the trusses. The bearing pressure under the plates shall not exceed_____pounds per sq. in.

PAINTING

All trusses and bracing shall be given one coat of standard shop paint at the factory before shipment.

DETAILS REQUIRED IN ORDERING

It is recommended that quotations be asked for and orders placed for trusses and truss bracing on a lump sum basis freight allowed to nearest railway siding. Full plans for the project should be submitted to the Macomber representative or our home office at Canton in asking for quotation. It is frequently to the purchaser's advantage to combine and place orders for purlins, steel windows, columns, etc., with the truss order. This centers the responsibility for the steel requirements and results in savings in handling the combined order.

The following information is necessary to quote intelligently on trusses and bracing:

1. **TOTAL LOAD:** This includes the roof live load, the dead load of roof construction, the dead load of ceiling construction and the amount and location of concentrated loads. Each should be clearly specified. Our engineers are available to make definite recommendations as to live and dead loads where our experience can be utilized to advantage.

2. **SPAN:** The clear span between supporting columns or pilasters is required.

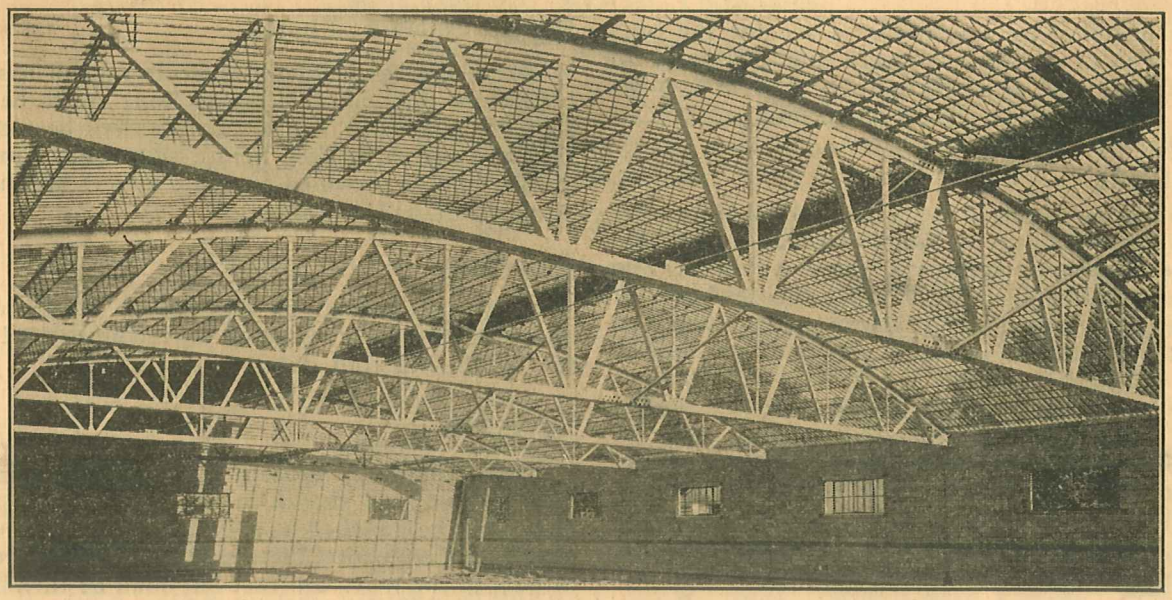
3. **LIMITATION IN SPACING OF TRUSSES:** Where possible the center to center spacing of trusses should be left to the Macomber representative or engineer to utilize the full carrying capacity of the trusses best suited for the requirement. The exact spacing of trusses should be stated where the building design determines the spacing.

The following information is essential to enter and ship truss orders:

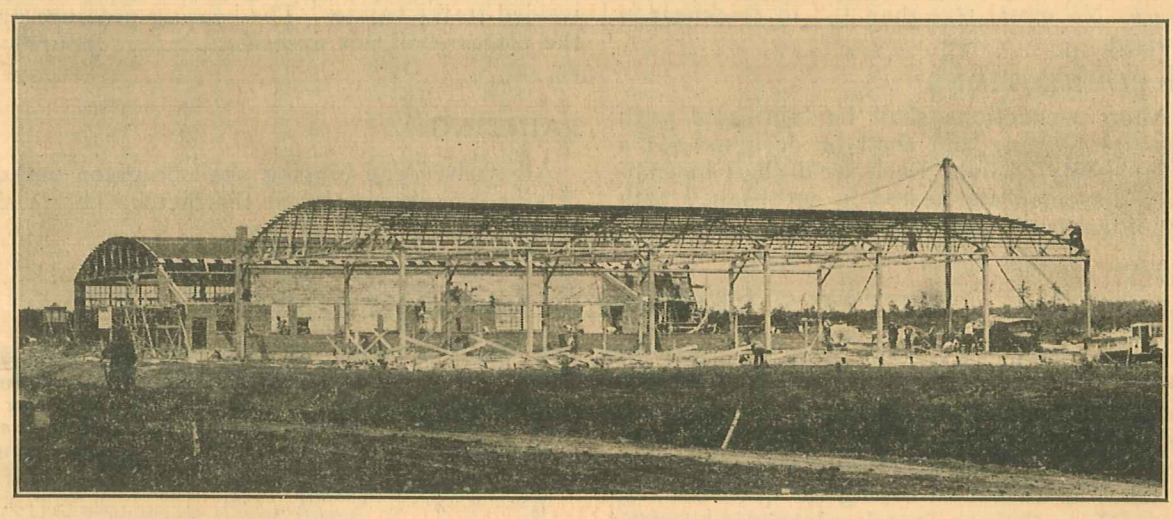
1. Truss symbol and number of trusses.
2. Overall length of truss.
3. Center to center spacing of trusses and (where bracing is to be furnished) type of truss bracing.
4. Punching in top chord for attaching purlin construction, except where Macomber is to furnish the purlins.
5. (Masonry pilasters) Maximum permissible bearing pressure.

5-a. (Steel columns) Details for punching trusses for connecting to columns.

6. Such other punching details as may be required for attaching suspended balconies, hoists, monorail systems, column knee bracing, etc.



Interior View of Store and Bowling Alley, Cincinnati, Ohio.
Macomber Trusses Supporting Concrete Decking on
Macomber Bar Joist Purlins.



Two Airplane Hangars—Albany Airport—80 ft. by 120 ft.
Macomber Trusses Supporting Wood Decking on
Macomber Nailer Type Purlins.

Macomber Standardized Service in Steel for One-Story Buildings is ideal for Hangars, Terminals, Gymnasiums, Auditoriums, Theatres, Warehouses, Factories, Garages and the like. Macomber Catalog No. 618 covers this complete service in steel.

THE MACOMBER STEEL COMPANY, CANTON, OHIO